



















**INTERNATIONAL UNION OF PURE  
AND APPLIED CHEMISTRY**

**INFORMATION BULLETIN  
NUMBER 8**

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**SECRETARY GENERAL:**

Dr. Rudolf Morf, c/o Sandoz Ltd., Basle 13, Switzerland

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## INTRODUCTION

With issue No. 8 the Information Bulletin appears for the first time in its new shape. In accordance with a decision taken by the Bureau, all publications of the International Union of Pure and Applied Chemistry should be of uniform presentation and format and have to be published by the Union's official publisher Butterworths Scientific Publications Limited, London.

Issue No. 7 was printed in 2000 copies. This limit has now been exceeded, so that letter-press printing will be cheaper than litho-printing. The Secretary General sincerely hopes that the interest which has hitherto been shown in the Information Bulletin by member countries, Titular Members, chemists doing research work at universities, learned societies and chemical as well as chemical engineering industries will also in the future justify the enlarged edition of our Bulletin and the additional costs involved.

It should be repeated here that the Secretary General is always very thankful to receive critical comments and advice regarding shape and contents of the Information Bulletin.

Information Bulletin No. 8 covers the period from December 1958 until the end of May 1959. (Owing to unforeseen incidents the French version of Information Bulletin No. 7 was published with a serious delay for which the Secretary General once more expresses his apologies.)

Few meetings and events only were held during the period under review. Most of the work was done behind the scenes. The central meeting and highlight of IUPAC activities, i.e. the XXth Conference and the XVIIth International Congress of Pure and Applied Chemistry are casting their shadows before as is reflected in the detailed preparatory work done by the secretariats at Munich, Frankfurt and Basle.

The following meetings have been held during the period covered by this Bulletin:

- (a) Meeting of the Water, Sewage and Industrial Wastes Division, London, 16 December, 1958.
- (b) 41st meeting of the Executive Committee, Moscow, 23—25 March, 1959 (following the VIIIth Mendeleef Congress).
- (c) International Conference on Co-ordination Chemistry, London, 6—11 April, 1959.
- (d) Symposium sur les limites tolérables des substances toxiques dans l'industrie, Prague, 14—17 April, 1959.

Moreover, the following meetings which have been omitted in Information Bulletin No. 7 should be mentioned here:

- (e) Meeting of the Commission on Physico-Chemical Symbols and Terminology, Copenhagen, July 1958.
- (f) Meeting of the Toxicology and Industrial Hygiene Division, Paris, 30 September and 1 October, 1958.
- (g) Meeting of the Commission on Molecular Spectroscopy, Liège, 8 September, 1958.

## I. FINANCIAL QUESTIONS

The Honorary Treasurer's Biennial Report with the income and expenditure account for the years 1957 and 1958 which was presented to the Executive Committee at its 41st meeting in Moscow exposes the financial situation of the Union.

It may be permitted to the Secretary General to add a few personal remarks:

### *(a) Sales of publications by the Secretary General*

The Honorary Treasurer has already pointed out that the sales of publications by the Secretary General have been steadily increasing. However, the Secretary General wishes to draw your attention to the fact that, owing to the appointment of an official publisher of IUPAC, all publications of the Union will be available through the official channels of the publication trade and the amount of sales effected by the Secretary General will consequently gradually diminish in the future. It should also be noted that the Comptes Rendus of the XIXth Conference do not contain the Nomenclature Rules. These have been published separately, thus depriving the Comptes Rendus of one of the most attractive sales promoters.

### *(b) Expenses for the Information Bulletin*

For the first time, the expenditure account for the years 1957 and 1958 list the expenses for the Information Bulletin which the Union has refunded to Messrs. Sandoz Ltd. Owing to the enlargement of the edition and, consequently, the increase in printing and mailing costs it is evident that for the next fiscal year we have to envisage higher expenses for the Information Bulletin. This is the reason why the Council as well as all Titular Members and member countries will be invited to express their points of view and to decide whether money spent for the Information Bulletin is worth its while.

### *(c) Explanatory remarks on how to interpret the budget figures*

The budget for 1959 (Appendix A), established by the Honorary Treasurer and circulated among the member countries and all Titular Members was discussed at the 41st meeting of the Executive Committee, which *resolved*:

- "(i) to approve, in principle, the budget for 1959;
- (ii) to give further detailed explanations in a circular letter how to interpret the budget figures."

In accordance with this resolution the following information has been sent to all Titular Members.

The budget figures are established in accordance with resolutions taken at the 40th (Washington, 8-12 October, 1958) and 41st (Moscow, 23-25 March, 1959) meeting of the Executive Committee.

These resolutions interpreted liberally read as follows:

In view of the heavy drain on the Union's finances and with the wish to facilitate the attendance of as many Titular Members as possible at our meetings, it was resolved:

- (i) that, in principle, all Titular Members listed in the Comptes Rendus will be paid travel allowances (tourist class air travel return fare from their respective homes to the meeting place of the Conference);
- (ii) that the \$400 subvention (travel and subsistence) ceiling be maintained;



- (iii) that, in principle, no subvention shall be given to meet costs of meetings which will be held in places other than the meeting place of the Conference;
- (iv) that for Bureau members, for Presidents of Divisions and Commissions and for Secretaries of Sections, Divisions and Commissions there be allowed subsistence expenses for four days as the maximum (provided that the \$400 ceiling be not exceeded);
- (v) that for the Nomenclature Commissions (Organic, Inorganic and Biological Chemistry Section) subsistence allowances be paid for their lengthier meetings at the rate of £2/10/- a day.

Following the circulation of the final budget for 1959 by the Honorary Treasurer many queries were addressed to the Secretary General by the Sections, Divisions and Commissions which complained that the amounts allotted would not be sufficient. As a matter of fact, no grants whatsoever are provided in the budget for 1959 to meet administrative expenses.

The Secretary General wishes to elucidate the figures as follows: With the aim of making the budget figures as accurate as possible, thus avoiding a pessimistic budget—a bad habit which usually is practised by those who want to increase taxes—, all budget figures were calculated very carefully. Especially the members lists were checked with great care and it was made sure that no person was counted more than once although he might be a member of more than one Division or Commission. Members of Divisions or Commissions who happen to be Bureau members were granted travel allowances only once, say as members of the Bureau, and, therefore, are not counted again in their respective Division or Commission. In order to make the procedure quite clear a specific example is herewith given: Dr. H. W. THOMPSON, for instance, is a member of the Section Committee of the Physical Chemistry Section. Moreover, he is President of the Publication Committee and Chairman of the Commission on Molecular Structure and Spectroscopy. His expenses for travel are calculated only once, i.e. based on his membership of the Section Committee of the Physical Chemistry Section. No travel expenses have therefore been listed for Dr. THOMPSON in the figures concerning the Publication Committee and the Commission on Molecular Structure and Spectroscopy.

*Procedure how to make claims for travel and—if entitled to—for subsistence allowances*

It is well understood that the Honorary Treasurer and the Secretary General are in the first instance the obedient servants of the member countries and Titular Members. Our first concern therefore is to interfere as little as possible with administrative regulations, etc. The easiest way for us would be to distribute the funds of the Union at the beginning of the year and to let all Sections, Divisions and Commissions deal with their money as they like. Yet, such a procedure would doubtless result in insolvency for the Union because the expenses budgeted are much higher than the income and, moreover, this income is received toward the end of the year only. Nolens volens, we must therefore ask for a minimum of formalities and we kindly invite all Secretaries of Sections, Divisions and Commissions to be good enough to lend us their valuable help.

The best way to facilitate payment of travel and, if any, subsistence allowances and to avoid additional costs and superfluous administrative formalities would be for the Secretaries of Sections, Divisions and Commissions to inform the Secretary General in good time about all details of the meetings proposed and to ask for the claim forms. These claim forms should be sent, together with the invitation and the agenda for the meeting, to the

members of Sections, Divisions and Commissions who are requested to complete them. They should be signed and countersigned by the Section President and subsequently forwarded to the Secretary General who will make the necessary arrangements through the Union's bankers for payment of the allowances at the meeting of the Section, Division or Commission.

It is well understood that only Titular Members who are listed in the Comptes Rendus and who attend the full meeting are entitled to receive travel allowances.

In the rare and exceptional case when a Section has elected Titular Members during the interval between two Conferences—provided that approval in writing has been given by the Executive Committee—other than those Titular Members listed in the Comptes Rendus may be paid travel allowances.

## II. RELATIONS WITH THE INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS—ICSU

The International Council of Scientific Unions has extended the fiscal year to the calendar year, a procedure which resulted in an extension to a 14-months year and which caused additional work and costs to the Union.

Subsequently, it was not only difficult to close the accounts for the fiscal year 1958 but also the reports to be delivered to ICSU and UNESCO by the Secretary General and the Honorary Treasurer caused an additional burden. These reports being a mere formality—considering that all the Union's activities are set out in detail in the Information Bulletin as well as in the Comptes Rendus—are a rather cumbersome and unnecessary charge to the secretariat. The Secretary General's "General Report to the International Council of Scientific Unions on the Activity of the International Union of Pure and Applied Chemistry for the Fiscal Year 1957–1958 (14 months)" is appended (Appendix B).

### Joint Commission on Applied Radioactivity

This Commission of which IUPAC is the Mother-Union is once more causing trouble and a lot of additional work to both its President and to the Secretary General. Moreover, the Honorary Treasurer, the Secretary General and the President of the Commission have drawn the attention of the ICSU authorities to the necessity of taking a clear decision and providing the necessary financial means. Yet, IUPAC has never received a satisfactory answer.

This is the reason why, following a proposal by Professor W. A. NOYES, the Executive Committee at its 41st meeting held in Moscow *resolved*:

- "(i) That IUPAC as Mother-Union of the Joint Commission on Applied Radioactivity should request the Bureau of ICSU to grant the necessary funds to this Commission in order that it may continue to do fruitful work.

The financial support needed comprises:

- (a) a sum of \$5000 as requested by Sir CHARLES DODDS in his letter No. 2414 of 16 December 1958. This sum is required for continuing the work of the Commission including the cost of organizing one or more symposia in the field of applied radioactivity;
  - (b) a sum of \$2440 as requested by Dr. H. SELIGMAN, President of the Joint Commission on Applied Radioactivity, on 26 January 1959, for a working group which has to draw up rules for the radium standards of which the Commission and the Union are the custodians.
- (ii) That, if sufficient funds cannot be made available, IUPAC would have to withdraw from the patronage of the Joint Commission on Applied Radioactivity, and
- (iii) That, in order to safeguard the interests of chemistry in the field of nuclear science, IUPAC should collaborate with international organizations other than ICSU."

Meanwhile, in view of the urgency and the importance of the problems involved, the Secretary General contacted the International Atomic Energy Agency in Vienna and by courtesy of its Director General, Mr. STERLING COLE, it has been possible to arrange a symposium on radioactivation analysis which is greatly needed and which has found appreciation among nuclear scientists.



## Symposium on Radioactivation Analysis

The *Symposium on Radioactivation Analysis* was held in Vienna from 1-3 June 1959, under the joint sponsorship of the International Atomic Energy Agency and the Joint Commission on Applied Radioactivity, respectively the International Union of Pure and Applied Chemistry. The programme for this event read as follows:

### *Monday, 1 June*

- G. B. COOK (Harwell, Great Britain): General considerations on radioactivation analysis in reactors  
W. HERR (Mainz, Germany): Radioactivation analysis in the service of geochemistry

### *Tuesday, 2 June*

- P. LÉVÊQUE (Saclay, France): Radioactivation analysis in the service of industry  
G. W. LEDDICOTTE (Oak Ridge, USA): The use of radioactivation analysis in the United States  
J. M. A. LENIHAN (Glasgow, Great Britain): Radioactivation analysis in biochemistry and in medicine

### *Wednesday, 3 June*

- J. HOSTE (Gand, Belgium): Radioactivation of elements which, to a small proportion, fall under the composition of special steels  
J. V. JAKOVLEV (Moscow, USSR): The application of radioactivation analysis in metallurgy

The symposium was held in the premises of the Hofburg, Heldenplatz, Vienna I (telephone 521687). For further particulars please apply to the Secretariat of the International Atomic Energy Agency, Kärntnerring 11, Vienna, Austria.

## Committee on Space Research (COSPAR)

Owing to the resignation of Professor CLUSIUS, the Executive Committee had to appoint a new IUPAC representative to COSPAR. Professor E. MIESCHER from Basle was elected by correspondence. He attended the COSPAR meeting which was convened at The Hague from 12-14 March 1959, and reported as follows:

### *Report on the COSPAR meeting at The Hague*

A meeting of COSPAR (Committee on Space Research) was held from 12-14 March, 1959, at The Hague, Netherlands, in the premises of Paleis Noordeinde, headquarters of the International Council of Scientific Unions. President: Professor H. C. VAN DE HULST. The undersigned attended the sessions on the second and the third day of the meeting as a delegate of the International Union of Pure and Applied Chemistry. He was appointed to the Finance Committee as successor of Professor K. CLUSIUS who had resigned.

The budget for the period from 1 November, 1958-31 December, 1959, which shows a total expenditure of \$60000—whereof \$30000 for meetings of the working groups—has been approved. With an income of \$55000 there is a deficit of \$5000.

The reports of the Ad Hoc Sub-Committees A, B and C have been received and approved.

The composition of COSPAR formed the main object of long and not very happily conducted negotiations. Whereas only one representative from the USSR (Professor E. K. FEDOROW) was present, there was an overwhelming majority of delegates from the Western powers.

Finally, the following resolution was taken:

"COSPAR expresses unanimously the opinion that the composition of COSPAR as set out in the present text of its charter, as reported by the first meeting of COSPAR, London, 14-15 November, 1958, but not yet adopted by ICSU, should be reconsidered."

Furthermore, a detailed proposal for the charter and the bye-laws of COSPAR was adopted and transmitted to ICSU as a recommendation. Paragraph II, Composition, of this proposal reads as follows:

"The composition of COSPAR shall be as follows: (a) a delegate from each of the following scientific Unions: IAU, IUGG, IUPAC, URSI, IUPAP, IUBS, IUTAM, IUPS and IUB, and any other Union which may at a later date be designated by ICSU; (b) a delegate from the representative scientific institution of any country recognized by ICSU, which is actively engaged in launching scientific rockets or satellites, in programmes of observation of such vehicles for scientific purposes, or in any other scientific research projects making use of such vehicles, and which may express a desire to be represented in the COSPAR."

The delegate of the United States, Professor R. W. PORTER, reported that the USA is willing to support experiments of scientists from other countries. On the recommendation of COSPAR the US National Aeronautics and Space Administration intends to launch a rocket with a net weight of 100-300 pounds in an orbit at a distance of 200-2000 miles. It will be possible for countries other than the United States to participate in the net weight of this rocket. It is expected that the preparations for this experiment will take  $1\frac{1}{2}$ -2 years.

It is planned to hold the next meeting of COSPAR at the end of 1959 in the South of France.

Signed: Prof. E. MIESCHER

### III. RELATIONS WITH MEMBER COUNTRIES

#### *Australia*

As already mentioned previously, this member country which is the most remote country from the Union's headquarters has taken the initiative of organizing a symposium on the chemistry of natural products in 1960. The preparations for this event are going well ahead. Attention is called to an intermediate report from Dr. A. L. G. REES, Convener of the Symposium on the Chemistry of Natural Products (Appendix C).

#### *Japan*

It was announced that Mr. YASUJIRO NIWA and Mr. DAISAKU MIWA have been nominated President, respectively Vice-President of the Japan Information Center of Science and Technology.

#### *Jugoslavia*

The Secretary General has been informed that the address of the Jugoslavian National Committee for Chemistry has changed and that all correspondence should henceforth be directed to:

Professeur PANTA TUTUNDZIĆ  
Secrétaire de l'Union des Sociétés chimiques de la RPFY  
Boîte postale 494  
Belgrade / Yougoslavie



## IV. ACTIVITIES OF THE UNION THROUGH THE SECTIONS AND COMMISSIONS

All Sections have been very active to prepare their reports, their elections and their meetings for the XXth Conference. Intermediate reports have been received from:

### Physical Chemistry Section

*Report of the Commission on Physico-Chemical Symbols and Terminology*  
Meetings in Copenhagen, July 1958

Meetings were held on July 9, 10.00–12.00, 14.00–17.00; July 10, 9.15–12.00, 14.00–16.00; July 11, 9.15–11.30.

Present: As observers: President of the Section, Prof. Dr. W. KUHN; Prof. Dr. P. VAN RYSELBERGHE (Commission on Electrochemistry); Prof. Dr. I. J. GERASSIMOW, designated Titular Member, arrived late and took only part in the meeting on July 11; Titular Members: Prof. Dr. R. BRDICKA, Prof. Dr. J. A. CHRISTIANSEN (Chairman); Prof. Dr. FARRINGTON DANIELS; Prof. Dr. E. A. GUGGENHEIM; Prof. Dr. W. JOST; Prof. Dr. G. SEMERANO; Prof. Dr. A. ÖLANDER.

#### *Agenda*

##### (1) The Report on activity since Paris 1957.

There has been correspondence concerning the desirability of publishing the Commission's recommendations outside the Comptes Rendus of IUPAC.

It was proposed to print them in a book or in a pamphlet edited by the Union. The proposal has been discussed in the Publication Committee of the Union, but according to a letter of March 3 from the Chairman of the Committee, H. W. THOMPSON, we shall have "to await developments" before the plan can be carried out.

Besides this, the report from Paris has been edited and it was printed at the end of the year 1957.

After correspondence with the Academy of Sciences in Moscow, Professor GERASSIMOW was proposed as a Titular Member of our Commission, and he is now formally elected from January 1, 1959.

From 12–16 November 1957, there was a meeting in ISO/TC 12 on "Quantities, Units, Symbols, Conversion Factors and Conversion Tables". Our Commission was represented by its Chairman, and E. A. GUGGENHEIM took part as member of the British delegation.

##### (2) The proposal from ISO/TC 12 to prefer the MKSA system of units to the CGS system.

This question to the Commission was raised by the President of the Physical Chemistry Section, Prof. Dr. W. KUHN, in a letter of 14 May, 1958. After a thorough discussion the following recommendations were adopted.

- (a) It is suggested that, as a first step towards a more general use of the MKSA system in Physical Chemistry, this system be recommended for immediate use in Electrochemistry.
- (b) In addition to the MKSA and CGS units there are, apart from the Anglo-American units, several widely used non-coherent units. The most important of these are the litre, the atmosphere and the calorie.

It is immaterial whether these are defined in terms of MKSA or CGS units. It would be desirable also to gradually eliminate the use of these non-coherent units as soon as feasible.

(3) The report received from the Commission on Electrochemistry: Conventions Concerning the Signs of Electromotive Forces and Electrode Potentials.

The following resolution formulated by GUGGENHEIM and VAN RYSSELBERGHE was adopted:

The Commission considered the CITCE document entitled "Conventions Concerning the Signs of Electromotive Forces and Electrode Potentials" and records its gratification that there is complete agreement between the recommendations in this document and those of our Commission formulated in Stockholm and recorded in the Proceedings of that meeting.

(4) Future activity of the Commission concerning physico-chemical terminology. Is it possible and/or desirable for the Commission to publish lists of definitions of the terms appearing in our list of symbols?

It was decided, that our Commission should formulate definitions for certain items in our list. Such definitions should be made known as soon as possible to the Secretary (in Copenhagen) of ISO/TC 12.

(5) Discussion of the CITCE report received from Dr. P. VAN RYSSELBERGHE. The discussion centered on the name free enthalpy in the said report. The Commission decided to accept one of the alternatives:

(a) for 309 Helmholtz' function or free energy, for 311 Gibbs' function or free enthalpy;

(b) for 309 Helmholtz' function, for 311 Gibbs' function, if it could be supported from the different quarters. If not, the Commission decided to stick to the recommendations from Zürich 1955.

(6) Constitution of the Commission.

A vote of thanks to Professor R. BRDICKA who is retiring was unanimously passed.

The steps necessary to elect new Titular Members of the Commission were decided upon.

(7) The question of publications of the Commission's recommendations.

It was decided that the Chairman should prepare the manuscript for a small book containing recommendations without definitions.

The President of the Section promised to do his best to further the printing.

(8) Other business matters.

A letter from Professor GERASSIMOW, who was present, was read and partly discussed. Prof. GUGGENHEIM gave a lecture on the modern difficulties with atomic weight.

The meeting was adjourned.

Signed: Prof. J. A. CHRISTIANSEN

## Report of the Commission on Molecular Structure and Spectroscopy

The Commission met at Liège on 8 October, 1958. The following were present:

THOMPSON (President), CRAWFORD, DUYCKAERTS, LECOMTE, MANGINI, MECKE, MIZUSHIMA (Titular Members); JONES (Delegate Member); HERZBERG (advisory counsellor).

Prior to this meeting, discussion had taken place at Meriden, USA, on 18/19/20 August, in which KETELAAR, LORD, TERENIN (Titular Members), and BRATTAIN (Delegate Member) had also been able to participate. A number of observers attended these meetings.

(1) With regard to the enquiries by Dr. KLINKENBERG of the JSC regarding the possible formation of a Triple Commission on Spectroscopy, it was resolved to advise the IUPAC Executive Committee that it is desirable for the Commission on Molecular Spectroscopy to continue with its programme which has been designed for the benefit of chemical spectroscopists, but to state that a Triple Commission might be useful for the discussion of certain matters which concern all aspects of spectroscopy. The Commission agreed that if a Triple Commission were formed, its representatives should be THOMPSON (UK), JONES (Canada) and MIZUSHIMA (Japan), and it further suggested Dr. HERZBERG as a suitable Chairman, since his interests include physics, chemistry and astronomy.

(2) It was reported that plans were now in hand for the bringing together of meetings of the European Molecular Spectroscopy Group and the International Spectroscopic Colloquium.

(3) The Commission felt unable to give formal endorsement through IUPAC to the Symposia of the American Association of Spectrographers.

### (4) *Units and terminology*

(a) it was agreed *not* to support a recent proposal to introduce a new unit of frequency equal to  $3 \times 10 \text{ sec}^{-1}$  (symbol K or Ky).

(b) It was agreed to recommend the use of the Angstrom as the preferred unit of wave-length for ultra-violet spectra. The use of the millimicron, although undesirable, may have to be accepted in certain circumstances.

(c) A statement on the terminology for different kinds of molecular vibrational modes will be prepared in English, French and German, and extended to other languages if necessary.

### (5) *The MKS system*

In reply to an enquiry from Professor KUHN, the Commission resolved that:

"The Commission offers no objection; there seem to be no advantages to this system in spectroscopic work, but the disadvantages would be no more than temporary inconvenience from unfamiliar powers of ten, which would become familiar in a short time."

### (6) *Infra-red wave-length standards*

The Commission is preparing a set of standard wave-lengths for use with instruments of high and low dispersion. The state of this programme was considered and plans were made for its execution. It is proposed to use emission arc lines, absorption lines of molecular gases, and of liquids and solids. A report should be ready for the Munich meeting 1959, and the recommendations will be incorporated in the manual which the Commission hopes to publish.



### (7) *Infra-red documentation*

The Commission reviewed the existing schemes for collections of infra-red spectra and card indexes, and welcomed an offer from Dr. LÉUILLE (GAMS, Paris) to co-operate in this matter. It was agreed that these existing systems gave adequate coverage, and that the introduction of any other schemes should be discouraged. Indeed, efforts should be made towards a consolidation or closer unification of the existing schemes.

### (8) *Ultra-violet documentation*

- (a) The Commission was agreed that the attention of the Editorial Board of Chemical Abstracts should be drawn to the inconvenience of its present form of indexing spectra of individual compounds. The Commission would be glad to assist, if invited, in suggesting a more suitable form of classification.
- (b) It was agreed to recommend that in the *presentation of ultra-violet spectra*, it is desirable whenever possible to present a photographic reproduction of an original spectrum as recorded. The *minimum* requirements for the description of a spectrum are (i) the location of all absorption maxima and inflections, (ii) the intensity of absorption at all absorption maxima and inflections, (iii) the solvent or phase in which the spectrum is determined. A statement of the solute concentration or gas pressure, and of the ambient temperature in the absorption cell, is also desirable.

The preferred unit for the location of the maxima is the wave-length in Angstrom units. In cases where, for instrumental or other reasons, it is not possible to locate the position of maxima with a precision better than  $\pm 5 \text{ \AA}$ , the use of the millimicron will be taken to indicate this fact. Where it is considered desirable to express band positions on a frequency basis, the unit should be  $\text{cm}^{-1}$ .

For measurements made in solution in a non-absorbing solvent the preferred unit for the intensity of absorption at wave-length  $\lambda$  is

$$\epsilon_{\lambda} = \frac{1}{b \cdot c} \log_{10} \left( \frac{I_0}{I} \right)_{\lambda}$$

where  $b$  = sample thickness in cm,

$c$  = concentration of the solute in moles per litre of solution

and  $\left( \frac{I_0}{I} \right)_{\lambda}$  = proportion of radiant energy of wave-length  $\lambda$  transmitted by the solution.

While "molecular extinction coefficient" and "molar absorptivity" are acceptable names for  $\epsilon_{\lambda}$ , the Commission favours the use of the word extinction.

Where the absorption range is large, or for other reasons it is considered desirable, the absorption may be expressed in terms of  $\log_{10} \epsilon_{\lambda}$ .

Other units such as E (1%, 1 cm) or "k value" should be used only when the molecular weight of the compound is unknown. It is undesirable to use per-cent transmission as ordinate.

### (9) *Infra-red intensity measurements*

The Commission is examining the best way of obtaining uniformity in infra-red intensity band measurements, and hopes to set out a recommended procedure for this with selected reference standards. Further study of the spectrometer slit function is also being undertaken, and the Commission intends to co-ordinate its work with a similar project of the American Petroleum Institute. It is hoped to report further at Munich 1959. In the



meantime, tentative suggestions are put forward for three intensity units, namely,

(a) an *absolute* unit, defined as

$$\frac{1}{b \cdot n} \int \ln \left( \frac{I_0}{I} \right)_\nu \cdot d\nu$$

in which  $b$  = sample thickness in cm,

$n$  = concentration in molecules per  $\text{cm}^3$

$\nu$  = frequency in  $\text{sec}^{-1}$

and  $\left( \frac{I_0}{I} \right)_\nu$  = proportion of radiant energy of frequency  $\nu$  transmitted by sample,

the integration being taken over the whole of the absorption band, unless otherwise stated. The dimensions of this absolute unit are then  $\text{cm}^2 \text{ sec}^{-1} \text{ molecule}^{-1}$ ;

(b) a *secondary* unit, desirable for some theoretical studies, defined as

$$\frac{1}{b \cdot n} \int \ln \left( \frac{I_0}{I} \right)_\nu \cdot d(\ln \nu)$$

in which the units are the same as for the absolute unit of intensity, and the dimensions are those of a cross section, i.e.  $\text{cm}^2 \text{ molecule}^{-1}$ ;

(c) a *practical* unit, for use primarily in the quantitative analysis of solutions,

$$\int_{\nu_1}^{\nu_2} \epsilon_\nu \cdot d\nu$$

in which  $\epsilon_\nu = \frac{1}{b \cdot c} \log_{10} \left( \frac{I_0}{I} \right)_\nu$

with concentration  $c$  in moles per litre of solution,  $b$  in cm, and  $\nu$ ,  $\nu_1$  and  $\nu_2$  are measured in  $\text{cm}^{-1}$ . This quantity is of the nature of an arbitrary space integral as indicated by the choice of integration limits. Its dimensions are  $\text{mole}^{-1} \text{ cm}^{-2} \text{ litres}$ .

The choice of acceptable names and symbols for these three units is still under consideration and a recommendation will be made later.

#### (10) *Nuclear magnetic resonance*

The Commission has made some progress in its attempt to suggest a suitable format for the presentation of data and the requirements which should be laid down for standard measurements. It is again in consultation with the API, and other groups active in this field, and a report should be available at Munich 1959.

#### (11) *Optical rotatory dispersion*

In view of the growing importance of this technique in chemical work, the Commission proposes to suggest a form for the recording and presentation of data which will lead to greater uniformity. Experts in the field are being consulted and a report will be available at Munich 1959.

#### (12) *Future meetings*

The Commission intends to meet again at Munich 27/28 August, 1959. It noted that the meeting of the European Molecular Spectroscopy Group had been arranged by Professor MANGINI at Bologna, 7-12 September, 1959, and suggested that part of this discussion should deal with "difficulties in spectrophotometry". It was also noted that Professor MIZUSHIMA hoped

to organize a Symposium on Spectroscopy in Tokyo 1962, and that the Bunsen Centenary celebrations would be held in Heidelberg in April 1960, and Professor TERENIN undertook to explore the possibility of holding the 1961 meeting of the European Molecular Spectroscopy Group in Russia.

St. John's College, Oxford

H. W. THOMPSON

## **Applied Chemistry Section**

### **Report of the Water, Sewage and Industrial Wastes Division**

*Minutes of the meeting of the Committee and General Rapporteurs*  
held at the Cunard Building, London, at 10.00 a.m. on Tuesday, 16 December, 1958.

*Present:*

Prof. W. F. J. M. KRUL (Chairman), Holland;  
Mr. E. L. STREATFIELD (Honorary Secretary), Great Britain.

*Committee:*

M. R. COLAS (Rapporteur général), France;  
Dr. D. GARDNER FOULKE (Rapporteur), U.S.A.;  
Prof. Dr. OTTO JAAG, Switzerland;  
Prof. Dr. F. MEINCK, Germany;  
Dr. B. A. SOUTHGATE, Great Britain.

*Rapporteurs:*

M. J. HENRY, Belgium;  
Mr. J. L. HEWSON, Great Britain.

*Apologies for absence were received from:*

Prof. E. LECLERC (Vice-Chairman), Belgium;  
Mr. DOUGLAS JONES (Rapporteur), Canada;  
Dr. Ing. F. WESEMANN (Rapporteur), Germany;  
Ir. P. S. BAKELS (Rapporteur), Holland.

(1) The Minutes of the meetings held in Paris on 22/23 July, 1957, having been circulated, were taken as read, approved, and were duly signed.

(2) The Honorary Secretary reported that the entire Committee, including the Officers, but with the exception of Dr. GARDNER FOULKE, would retire at the time of the meeting in Munich in August 1959. Dr. GARDNER FOULKE would retire in 1961.

Many Divisional Committees of the Applied Chemistry Section were in the same position, having been formed at the same time.

The Bureau of IUPAC was concerned that the activities of the Division should not be weakened by an en-masse retirement of Committee members. It would therefore be desirable that the new Officers of the Committee of the Division be appointed from among the members of the present Committee so that at least approximately one third of the present Committee would continue as members of the Committee in the capacity of Officers. It was also desirable that replacements on the Committee should be filled by keen young men if possible.

The Chairman therefore asked the Committee to think about this and also suggested that the Honorary Secretary should consider nominations for the offices of Chairman, Vice-Chairman and Honorary Secretary, so as to put these forward at Munich in 1959.

(3) *Report on "The Economic Use of Water and the Solution of Effluent Problems in Industry"*.

The Chairman suggested that there could be three possibilities as to size of the final report for publication:

- (a) Large—which would follow the questionnaire prepared by M. COLAS, Rapporteur général.
- (b) Medium—all the reports being collected together in a volume of say 300 pages.
- (c) Small—being a summary of the reports in say 50 pages.

It was also suggested that the report should be retitled "*Re-Use of Water in Industry—a contribution to the solution of effluent problems*". This was agreed.

The format for the report was discussed and it was agreed that,

on page 1 it should be stated that the report was published by the Division of Water, Sewage and Industrial Wastes of IUPAC,

on page 2 would be given the names of the Committee, General Rapporteurs and special National Rapporteurs,

on page 3 there would be an introduction to the Report by the Chairman, Professor W. F. J. M. KRUL, and the Committee,

on page 4 and following, there would be an introduction by M. COLAS covering about 30 pages, and then would follow annexes of the reports.

The question of *language* was discussed and the following possibilities were considered:

- (i) Reports to be published in a mixture of English and French, depending on how they were submitted. M. COLAS' chapter would be in both English and French. The title of the Report would be in both English and French. The separate chapters would then be in either English or French, as submitted, but there would be a summary in the other language. The total number of pages would be about 350.
- (ii) Separate volumes in English and French covering about 300 pages.
- (iii) A single volume in English only, which would mean that the French papers only would have to be translated. This would cover about 300 pages.

The arrangement covered by (i) i.e. mixed languages, English and French, is to be preferred. The Hon. Secretary was asked to discuss this matter with Dr. BUSHILL, Honorary Secretary of the Applied Chemistry Section of IUPAC, and also the question of page size and method of translation.

Progress on the individual reports as received to date was then discussed.

*Steel* / Dr. WESEMANN and Mr. MATHESIUS (Germany)

Both Dr. WESEMANN and Mr. MATHESIUS had difficulty in complying with the questionnaire put out by M. COLAS and in fact they both considered their reports as already submitted constituted their final work and they did not propose to add anything further. However, since both Prof. MEINCK and M. COLAS were proposing to visit W. Germany in mid-January, it was suggested that they should meet both Dr. WESEMANN and Mr. MATHESIUS for further discussion and the Honorary Secretary was asked to write to Dr. WESEMANN and Mr. MATHESIUS advising them of the impending visit. It was recalled that during the Paris meetings, Dr. WESEMANN had been requested to add two detailed examples of the actual approach to the problem in the Steel industry. It was thought that Dr. WESEMANN's final report would occupy about 40 printed pages and that Mr. MATHESIUS' report would occupy about 20 printed pages.



*Beet Sugar* / M. HENRY (Belgium)

M. HENRY has produced two further parts to his earlier general report, which he presented to the meeting. The whole report is most comprehensive. It has been left to M. COLAS to decide whether all the material should be included in the final report. It was considered that M. HENRY's contribution to the final report would occupy about 80 printed pages.

*Pulp and Paper* / Mr. DOUGLAS JONES (Canada)

Mr. DOUGLAS JONES had had difficulty in preparing his report in collecting information to give the technical slant required for the subject. The tendency was to deal too much with legal matters. It was thought that Mr. WALDMEYER in Great Britain could help Mr. DOUGLAS JONES in his work (and Dr. SOUTHGATE was asked to approach him) and that Dr. GEHM in the USA could also help. (Dr. GARDNER FOULKE offered to approach Dr. GEHM.) Mr. DOUGLAS JONES' contribution could then comprise a general report, and individual reports from Mr. WALDMEYER and Dr. GEHM. The Honorary Secretary was asked to acquaint Mr. DOUGLAS JONES of these suggestions. It was considered that Mr. DOUGLAS JONES' final contribution to the report would cover about 30 printed pages.

*Heavy Chemicals* / Mr. J. L. HEWSON (Great Britain)

Mr. HEWSON presented his final report to the meeting, which was accepted as being complete. Mr. HEWSON's contribution will occupy about 36 printed pages.

*Coal Mining* / Mr. P. S. BAKELS (Holland)

Mr. BAKELS had earlier presented his final report which was accepted as being complete. Mr. BAKELS' contribution will occupy about 50 printed pages.

*Electroplating* / Dr. GARDNER FOULKE (USA)

Dr. GARDNER FOULKE submitted a further interim report and will go ahead to prepare his final report. It was considered that this would occupy about 20 printed pages.

It was decided that those general rapporteurs who had not yet submitted their complete reports, should do so to M. COLAS by not later than the end of March 1959 and each rapporteur was asked to submit his report in *five copies*.

It was estimated that if the report is to be in two volumes, each of about 300 pages, the total cost would be £1500, or if in one volume £700. If say 750 copies were sold, then each volume should sell for at least £2. The Honorary Secretary was asked to discuss the whole matter of publication, printing and selling price, with Dr. BUSHILL.

(4) *IUPAC Congress, Munich, 30 August–6 September, 1959.*

During the Congress there were to be 3 Symposia, of which Symposium B—"Treatment and utilisation of biological and industrial waste materials" was of direct interest to the Water, Sewage and Industrial Wastes Division, and in fact, the Division had been asked to arrange lecturers for the 3rd Session covering sewage treatment and disposal. This part of the Symposium, together with discussion, would occupy one day. It was thought that arrangements should be made for 4 lectures of 40 minutes duration each, with discussion following each, and after consideration the following 4 subjects and proposed lecturers were suggested:

(a) "Wet combustion of sludge and industrial wastes" by Dr. ZIMMER-

MANN, Sterling Engr. Company, New York, USA. Dr. GARDNER FOULKE to approach.

(b) "Dewatering of sludges" by J. T. CALVERT, John Taylor & Sons, London. Dr. SOUTHGATE to approach.

(c) "Fishponds" by Prof. LIEBMANN, Munich. Prof. MEINCK to approach.

(d) "Recovery of ferric oxide and sulphuric acid from effluents containing ferrous sulphate" by Dr. TELLER, Leverkusen. Prof. MEINCK to approach.

(In reserve: "Rapid oxidation of sewage" by Dr. PASVEER). Prof. KRUL to approach.

In addition to the lectures it was proposed that a visit should be made to the fishponds in Munich. The Honorary Secretary was asked to write to Dr. BUSHILL and Dr. MORF, putting forward these suggestions and also to ensure that arrangements were made for translation of lectures, interpreters and service in the lecture theatre, such as the provision of ear-phones if possible, etc.

Summaries of the papers would be required.

Those who have been asked to approach lecturers are also asked to report to the Honorary Secretary by the end of January 1959.

It was also suggested that the title of this part of the Symposium be altered to "Sewage treatment and waste disposal".

It was also considered that the Committee should meet in Munich before the holding of the Symposium and that the Committee should also have a further meeting after the Symposium and excursion had been held.

#### (5) *Further subjects for study.*

Suggested further subjects for study would be discussed at the Munich meeting and consideration given to the publication of a second volume of the report to include further industries.

#### (6) *Date of next meeting.*

During the period of the Congress in Munich which is to be held from 30 August-6 September 1959.

On Wednesday 17 December, 1958, a visit was paid to the Water Pollution Research Laboratory at Stevenage, at the kind invitation of the Director, Dr. B. A. SOUTHGATE, CBE, after which a further meeting of the Committee was held, to go over the points discussed on the previous day. The Chairman concluded by thanking the Rapporteurs for their excellent work on their reports and he also thanked Dr. SOUTHGATE for the very interesting visit paid to the Water Pollution Research Laboratory.

Signed: E. L. STREATFIELD

### **Report of the Toxicology and Industrial Hygiene Division**

The activities of the Division have continued by correspondence and by a meeting held in Paris on 30 September and 1 October 1958.

Methods for the following substances have been finally approved and adopted by the Division; arsine, benzidine and  $\beta$ -naphthylamine.

The Division has further discussed the provisional method for lead, and has decided not to proceed with the method for methyl methacrylate. The provisional methods for bromine and acetone are to be reconsidered as more specific and sensitive reactions are available.

Further work is planned for the methods for arsenious oxide, mercury, hydrogen fluoride and cadmium. The future programme also includes a

consideration of methods for aromatic amines, methyl bromide and sulphuric acid. Maximal allowable concentrations have been agreed for ketene, acrylonitrile and chlorobenzene.

An introduction and 20 methods previously adopted by the Division have been revised and submitted to IUPAC for publication. During revision it became apparent that some of the early methods adopted do not take into consideration the advances which have later been made in analytical knowledge. It was decided, therefore, not to submit for publication methods for phosgene, sulphur dioxide, aromatic hydrocarbons (formolite method), ethylene oxide, nitrophenol, trinitrotoluene and tetryl, but to reconsider them at a subsequent meeting.

The Division is to collaborate with the Permanent Commission and International Association of Industrial Medicine in organizing a Symposium on Maximal Allowable Concentrations, to be held in Prague during April 1959.

Transmitted by Dr. J. H. BUSHILL

### Report of the Fermentation Industries Division

This Division held its first meeting in Paris on 4 November, 1957, and recommended the setting up of two *Ad Hoc* Commissions: *Commission A* for the Methods for the Determination of Fusel Oils and *Commission B* for the Characterization and evaluation of dried yeasts.

These two Commissions were approved and have since been pursuing their respective subjects as reported below. In addition, the Committee discussed the determination of alcohol in solution and the possibility of achieving an agreed international method. It also considered as suitable topics for future work rapid technical methods of determining vitamins in fermentation products and methods of characterizing types of baker's yeast. A preliminary discussion was held on suitable topics for Symposia at the Munich Congress in 1959.

The second meeting of the Committee was held at the Hague on 5 May, 1958. Reports of the first meetings of the *Ad Hoc* Commissions A and B were received and recommendations made that these Commissions should be recognised and encouraged to continue their work. The Committee received with regret the resignation of Mr. B. M. BROWN (GB).

At its third meeting, held in Berlin on 5 October, 1958, the Committee received a report of the lengthy meetings of Commission B on 4 and 5 October in Berlin, and heard of the work being carried out by Commission A.

The details of the programme of a Symposium on "Treatment and Utilisation of Biological and Industrial Waste Materials" were discussed and a list of suggested authors and papers agreed for transmission to the Honorary Secretary of the Applied Chemistry Section.

It was noted that Commissions A and B were both strongly desirous of holding at least one meeting each during 1959, and it appears that this will be achieved at Munich in August.

#### *Commission A (Fusel Oils)*

So far the Commission has only held an inaugural meeting at the Hague on 5 May at which were present Professor L. GENEVOIS (Chairman) (France), Dr. E. V. BELL (GB), and Professor B. DREWS (Germany). It was agreed that no chemical method is available for the specific determination of the various constituents of fusel oils and that the experimental work of two members of the Commission (Prof. GENEVOIS and Dr. BELL) had shown that gas chromatography does not permit the separation of 2-methyl-1-butanol (2-pri-act-amyl alcohol) and of 3-methyl-1-butanol (iso-amyl



alcohol). Chromic oxidation and bromination were discussed as starting points for microchemical methods. For procedure applicable to somewhat larger samples of fermented liquids, it was considered necessary first, in studying the constituents of fusel oils, to use such techniques as infra-red spectroscopy and Raman spectroscopy (see J. BARAUD and L. GENEVOIS, C.R.Acad.Sci. 247, p. 2479-81, Séance 22 déc. 1958).

A full meeting of the Commission is anticipated at Munich in August 1959.

#### *Commission B (Dried Yeasts)*

The Commission had its inaugural meeting at the Hague on 5 May, at which there were present: Professor H. LUNDIN, (Chairman) (Sweden), Dr. P. BIROLAUD (France), Dr. B. BUTSCHK (Germany), and Mr. J.M. KLOKGIETERS (Holland). A programme of work was devised and it was agreed that active dried yeast, i.e. for baking, should not be considered at present by this Commission. It is necessary to find a definition for dried yeast and to investigate differences between *Saccharomyces cerevisiae*, *Candida utilis* (= *T. utilis*), *S. lactis*, etc., in composition and nutritive value; also to co-ordinate the descriptions of dried yeast in the codices of different countries; to compare analyses of the different products, to decide on the minimum requirements of certain constituents, to find a reliable method for the determination of fibre content, and finally to collect figures on the production of dried yeast in different member countries.

At its second meeting, held in Berlin on 4 and 5 October, 1958, three sessions were held, at which were present: Prof. H. LUNDIN (Chairman) (Sweden), Mr. J. M. KLOKGIETERS (Honorary Secretary) (Holland), Dr. P. BIROLAUD (France), Dr. B. BUTSCHK (Germany), Dr. W. F. J. GUTHBERTSON (GB), together with associated members Prof. H. JØRGENSEN (Denmark), Prof. A. SZILVINYI (Austria), and Mr. H. J. BUNKER (GB) (Honorary Secretary of the Division).

After prolonged discussion an agreed definition of dried yeast was reached. It was considered desirable that a manufacturer should specify the origin of a yeast offered for sale and that under the label "Dried Yeast" it should not be permitted to sell yeast products which have been extracted or to which fillers have been added. Enrichment with vitamins or amino-acids should be permitted provided they are declared.

Views were expressed that the vitamin content and other qualities of dried yeasts depended less on the strains of yeast than on the substrate upon which they had been grown.

It was decided that the term "biological value" was of little significance in a definition without extensive explanation of methods of determination, particularly as the value can easily be changed by addition of various aminoacids.

The question of whether dried yeast must be inactive in fermentative power was considered to need further investigation. It was agreed that purine and pyrimidines were not harmful if not present in excessive quantities.

Although it was agreed that, in spite of the fact that human and animal feeding experiments were desirable with different yeasts, it was not within the competence of the Commission to organize such trials.

The Commission agreed upon the necessity of carrying out comparative analyses on the same lot of dried yeast, as follows: Water, dry matter, nitrogen, protein, fats, fibre, phosphate, ash, iron, copper, lead, B-vitamins, ergosterin, purine, methionine, cystine and cysteine. All members of the Commission agree to carry out or have carried out as many as possible of these determinations, and since the meeting a standard sample of a dried yeast has been sent out for analysis to some eleven centres.

Two matters which evoked much discussion and upon which decisions have been deferred were the permissible limits of moisture and protein contents of dried yeasts.

Among other points, it was noted that there was no general opinion on the possible effect of antifoaming agents on taste and health.

The Commission hopes to hold its third meeting at Munich at the end of August 1959.

Transmitted by D. J. H. BUSHILL

### **Ad hoc Committee to consider whether a Chemical Engineering Division should be formed**

The following letter has been received from Mr. JULIAN LEONARD, President of the above Ad Hoc Committee:

10 February, 1959

*Re:* International Union of Pure and Applied Chemistry—Suggested Chemical Engineering Division of the Applied Chemistry Section

Dear Dr. MORE,

I have had this matter very much on my conscience for some considerable time but, one way and another, it has not proved at all easy to arrive at finality. As I think perhaps you know, shortly after I had agreed to act as Chairman of the Ad Hoc Committee and to consult one or two outstanding figures in the Chemical Engineering world in Europe, my own ill health put a temporary stop to further progress. Those whom I invited and who agreed to serve on this Committee were:

Professor M. B. DONALD, Great Britain,

Professor M. E. J. CATHALA, France,

Professor K. WINNACKER, Germany,

Dr. J. C. VLUGTER, Holland,

Dr. P. GIUSTINIANI, Italy,

and between us we had a limited amount of correspondence within our terms of reference. It would indeed have been ideal if it had been possible for all of us to have met together but this was not easy as the members of the Committee, themselves very busy men, were often absent from their homes for long periods at a stretch. I myself was out of the country quite a bit during 1958, including a couple of months or so in Canada and the United States in the autumn. Personally I think we would never have succeeded in getting a majority of the Committee together in one place at the same time to make such a meeting worth while.

From the correspondence I can, however, sum up the general expression of opinion about the possible formation of a Chemical Engineering Division. All five gentlemen were, as you might guess, enthusiastic Chemical Engineers and very anxious to further the development of this science. It is true to say that all felt that something should be done to give Chemical Engineering greater stature by the formation of some association to look after its interests throughout the world. It was suggested that this might well be started by a vigorous European organisation or federation which would later expand to international status. At the moment there is in existence, as you know, the European Federation of Chemical Engineering, though this in some people's eyes has certain defects in its administration and in its emphasis on commercial aspects. The majority view, if not the unanimous one, was that it was not fitting to place Chemical Engineering under the wing of Applied Chemistry but rather to set it up on its own. Its scope was so very

much wider than that of Applied Chemistry, embracing as it does portions of many of the other forms of engineering and of other sciences.

I think the above is the correct interpretation of my Committee's view but it may well be felt that this is not sufficiently conclusive owing to the lack of a meeting. I am afraid that I myself am unable to carry the matter any further as I am too busy at present and to a certain extent physically handicapped.

In making this report to you, I am sending a copy of it to Dr. BUSHILL, the Secretary of the Applied Chemistry Section, as I feel he should be kept informed at first hand about what has transpired. I wish that my small efforts could have been more directly helpful but this will at least give you some idea of informed opinion on the subject.

Yours sincerely, J. M. LEONARD

### **Report of the Oils and Fats Division Rapport de la Division des Matières grasses**

La Division s'est réunie les 28 et 29 juillet 1958 à Bruxelles. L'ordre du jour comportait les problèmes suivants:

1° Méthode pour le dosage de l'alcali libre dans les savons de potasse: La méthode proposée par la Suisse est adoptée moyennant quelques modifications de détail.

2° Détermination spectrophotométrique de la couleur des huiles: Sur un nouveau texte 6 échantillons différents d'huile d'arachides et d'huile de colza seront examinés. Simultanément les déterminations LOVIBOND, FAC, seront également effectuées en corrélation.

3° Point de fusion des graisses: Etude sur 3 échantillons de point de fusion voisin de 28, 35 et 40° par 2 méthodes (méthode au capillaire et méthode au tube à essai).

4° Indice BÖHMER. Nouvelle étude sur 3 échantillons d'après un texte nouveau et très précis de la méthode.

5° Le texte établi par la Division des Matières grasses pour le dosage du glycérol d'après la méthode au periodate est définitivement adoptée moyennant correction de quelques détails.

6° Détermination des foots dans l'huile de lin: Continuation des travaux par une commission restreinte.

Questions nouvelles à étudier:

7° Indices de peroxydes: Nouveau texte avec correspondances des différentes définitions.

8° Dosage des faibles quantités d'eau d'après FISHER et KAUFMANN sur 3 échantillons.

9° Dosage dans l'UV des acides polyinsaturés.

10° Revoir les textes des méthodes normalisées avant la nouvelle édition par une sous-commission.

H. K. STURM

### **IUPAC Publication Committee**

The President of the Publication Committee has drafted an additional item 7 for his "General Plans for Publications" which now read as follows (this should be considered as a basis for discussion only—no approval having been given yet by the Executive Committee):

It is desirable to ensure a high quality of the IUPAC publications which will bring credit upon it. Also, the interests of the commercial publisher must be reasonably protected. The following rules are therefore suggested:



(1) Documents prepared by a IUPAC Section or Commission (particularly if it was aided by IUPAC finance) shall be regarded as the property of IUPAC which shall decide whether and how they are to be published.

(2) When a Section or Commission contemplates such a publication, the Publication Committee shall be informed at the earliest possible moment, so that official sanction can be given, and plans made with the publisher.

(3) The Union shall not be under obligation to publish any and every such document and the decision shall be taken by the Executive Committee which will normally ask the advice of the Publication Committee, or if it desires, seek the advice of experts in the field concerned.

(4) The ultimate authority for manuscripts and proofs will rest with the President of the Section under whose auspices the manuscript was prepared.

(5) Where overlap occurs, agreement will be necessary between the "pure" and "applied" Sections.

(6) The Statutes and Comptes Rendus of IUPAC shall be printed in both English and French, as hitherto; reports from Commission, or similar documents, shall be published in one language only (not necessarily one of the two official languages of the Union), except that publication may be in more than one language at the request of the Chairman of the Commission concerned, and subject to approval by the Executive Committee.

The following additional rules relate specifically to Symposia and Congress Lectures:

(7) The Union hopes as a matter of policy itself to encourage and organize from time to time special symposia in different countries. For this reason it will not in future, without special consideration of the Executive Committee, grant its sponsorship to meetings organized essentially by other organizations. If such sponsorship and financial assistance are given, the Union reserves the right to publication of the scientific material involved.

The proceedings of symposia organized specifically by the Union will be published by its official publisher, if such publication is thought desirable by the Executive Committee after taking advice from the Publication Committee. The Executive Committee may, at its discretion, consult the Union's publisher as to how far any joint arrangement shall be made between him and another publisher.

The publication procedures given in the preceding paragraph apply *in toto* to other symposia in which the Union is involved and to congress lectures organized under the authority of the Union. It is essential that the arrangement for publication shall be agreed by the Executive Committee (after taking advice from the Publications Committee) before the Union's sponsorship is granted.

A notice stating in principle the essential new conditions about publications was addressed to Presidents of Sections, Commissions, etc., by the Secretary General after the Paris meeting in 1957. No arrangements for publication of the relevant documents can be accepted which have been entered into since that date without proper consultation with the Publications Committee.

H. W. THOMPSON

The following report is published in this Bulletin with the aim of drawing the attention of chemists to the activity of ISO. It is well understood that the IUPAC Plastics and High Polymers Division may give its comments on the proposals made by ISO.

### **Summary Report on the Meeting of ISO/TC 61 on Plastics, Washington, D.C., 3-8 November 1958**

The 1958 meeting of Technical Committee 61 on Plastics of the International Standardization Organization was held in Washington, D.C., on 3-8 November. Twelve countries were represented by 57 delegates and observers as follows: Czechoslovakia (3), France (5), Germany (9), Hungary (1), Italy (1), Netherlands (3), Poland (2), Sweden (5), Switzerland (2), United Kingdom (4), United States (17), USSR (5). Dr. G. M. KLINE, National Bureau of Standards, was chairman of the meeting.

The Committee approved five new Draft ISO Recommendations and six Draft ISO Proposals. A Draft ISO Recommendation listing approximately 800 equivalent terms in the three official languages (English, French, and Russian) was revised in accordance with comments received from member countries and approved for submission to the ISO General Secretariat for promulgation as an ISO Recommendation.

The new Draft ISO Recommendations describe a method for melt flow index of polyethylene, recommended practices for compression molding test specimens of thermoplastic and thermosetting materials and injection molding test specimens of thermoplastics, and standard atmospheres for conditioning and testing plastics. The Draft ISO Proposals provide for the determination of tensile properties, dynamic mechanical properties using a torsion pendulum, viscosity number of polyamide resins, acetone-soluble matter of phenolic molding materials, Vicat softening point, and tracking (arc resistance) of plastics under moist conditions.

Action was taken to organize a new working group to prepare specifications for plastics materials based on current commercial practice as reflected in national standards and to consult with ISO/TC 45 on Rubber regarding standardization activity on cellular materials.

The meeting in Washington was preceded by an international symposium in Philadelphia on 30-31 October. The program, arranged by A. C. WEBBER, chairman, and sponsored by ASTM Committee D-20, included papers on standards developments in various countries, testing of plastics for mechanical and thermal properties, and determination of molecular characteristics of high polymers. The proceedings will be printed in an ASTM Special Technical Publication.

The ninth meeting of ISO/TC 61 will be held in Munich, Germany, 26-31 October, 1959. Immediately preceding this meeting will be a symposium of the IUPAC Macromolecular Commission in Wiesbaden on 12-16 October, and a Symposium on Stability and Corrosive Degradation of Plastics and High Polymers sponsored by the IUPAC Division of Plastics and High Polymers in Düsseldorf on 19 October.

G. M. KLINE  
Observer for IUPAC

**V. XXth CONFERENCE AND XVIIth CONGRESS—MUNICH**  
**26 August—6 September, 1959**

**(a) XXth Conference—26–29 August, 1959**

The XXth International Conference of Pure and Applied Chemistry will be opened by the meeting of the Bureau of IUPAC on Tuesday afternoon, 25 August, 3 p.m., 1959.

The most important event will be the two meetings of the Council which may be considered the General Assembly of IUPAC. The Council meetings are scheduled for Wednesday, 26, 9.30 a.m., and Saturday, 29 August, 9.30 a.m., 1959.

The problems to be treated by the Bureau and the Council are the following:

**Draft Agenda for the XXth Conference**

**Meetings of the Bureau and the Council**

- (1) Statutory Report of the President on the General State of the Union
- (2) Adoption of the Comptes Rendus of the XIXth Conference
- (3) Ratification of the appointment of a Finance Committee
- (4) Ratification of the appointment of a Drafting Committee
- (5) Biennial Report of the Honorary Treasurer and of the auditors
- (6) Member countries:
  - (a) Adoption of new members (Argentine, Bulgaria, Nationalist China)
  - (b) Ratification of the admission of Canada and Japan as members of category A
- (7) Budget for 1960–1961
- (8) Limitation of the number of Titular Members in Divisions and Commissions
- (9) Approval and ratification of the decisions taken by the Executive Committee
- (10) Adoption of the Section Presidents' Reports previously submitted to the Bureau and the Council in writing, in English and French
- (11) Final adoption of the tentative nomenclature rules and their publication
- (12) Possible proposal of tentative nomenclature rules
- (13) Report of the Publication Committee and decisions to be taken
- (14) Problem regarding abstracting and documentation
- (15) Rules regarding the election and term of office of the officers of the Union and of the members of Commissions
- (16) Associate Members
- (17) Working committee to report on the ISO recommendations regarding the fundamental units of mechanics—MKSA system
- (18) Problems regarding the Applied Chemistry Section
- (19) Report of the Section Presidents on the results of the Conference
- (20) Report of the Finance Committee
- (21) Election of the Executive Committee, of the Bureau and of Titular Members
- (22) Meetings scheduled for 1960–1961
- (23) Date and place of the XXIst Conference and the XVIIIth Congress
- (24) Programme and subjects of future Congresses (see resolution by the Section Presidents of 9 April, 1958)
- (25) Any other business
- (26) Lecture by Professor *W. A. Noyes jr.* on the activity in the field of space research (COSPAR).



All the six Sections of IUPAC and nearly all of the 36 Divisions and Commissions will meet at Munich in open and closed sessions during the week before the XVIIth Congress.

### Draft Programme for the XXth Conference

All meetings of the Conference will be held in the new premises of the Institute of Technology (Technische Hochschule), Munich.

Executive Committee . . . . .	Monday, 24, all day; Saturday, 29, after the Bureau meeting, and on other days
Bureau . . . . .	Tuesday, 25, 15.00–18.00 Saturday, 29, 16.00–18.00
Council . . . . .	Wednesday, 26, 9.30 Saturday, 29, 9.30
Meeting of Section Presidents and Secretaries with the Secretary General . . . . .	Monday, 24, 17.00 Tuesday, 25, 9.00
Meeting of the old and the newly elected Presi- dents and Secretaries of Sections, Divisions and Commissions . . . . .	either Sunday, 30, or Monday, 31—at the con- venience of the participants
Publication Committee . . . . .	Friday, 28, 9.30–12.00
Joint meeting of the Commission on Physico- Chemical Symbols and Terminology, Inorganic Nomenclature Commission, Organic Nomen- clature Commission, Biological Nomenclature Commission and representatives of the IUB Commission on Enzymes . . . . .	Saturday, 29, 9.00–12.00

#### (1) PHYSICAL CHEMISTRY SECTION

Section Committee . . . . .	Wednesday, 26, 17.00
Meeting of the whole Section . . . . .	Thursday, 27, 9.00
Commission on Physico-Chemical Symbols and Terminology . . . . .	Wednesday, 26, 9.00–12.00, and 13.00–17.00 Thursday, 27, 14.00–19.00 Friday, 28, 9.00–12.00
Joint meeting of the Commission on Physico- Chemical Symbols and Terminology, Inorganic Nomenclature Commission, Organic Nomen- clature Commission, Biological Nomenclature Commission and representatives of the IUB Commission on Enzymes . . . . .	Saturday, 29, 9.00–12.00
Commission on Chemical Thermodynamics . . . . .	Friday, 28, 9.00–12.00 Friday, 28, 16.00–17.00
Subcommission on Experimental Thermo- chemistry . . . . .	Wednesday, 26, 14.00–17.00 Friday, 28, 14.00–15.00

Subcommission on Experimental Thermodynamics . . . . .	Thursday, 27, 14.00–17.00 Friday, 28, 15.00–16.00
Commission on Electrochemistry . . . . .	Thursday, 27, 9.00–12.00 Friday, 28, all day
Commission on Macromolecules . . . . .	meets at Wiesbaden, 12–16 October
Commission on Physico-Chemical Data and Standards . . . . .	Thursday, 27, 14.00 Friday, 28, 9.30
Commission on Molecular Structure and Spectroscopy . . . . .	Thursday, 27, 14.00–19.00 Friday, 28, 14.00–19.00
Joint Commission on Applied Radioactivity .	does not meet
CITCE . . . . .	meets in Vienna, 28 September to 3 October
Joint meeting of the Commission on Electrochemistry and the Commission on Physico-Chemical Symbols and Terminology . . . .	date not yet fixed
Working group to study the problem of the CGS- and MKSA-systems . . . . .	either Tuesday, 25, or Wednesday, 26

## (2) INORGANIC CHEMISTRY SECTION

Section Committee . . . . .	Wednesday, 26, 17.00 Thursday, 27, 9.00
Commission on Atomic Weights . . . . .	Wednesday, 26, 14.00 Thursday, 27, 10.00
Nomenclature Commission . . . . .	meets during the whole Conference except on 27 August
Joint meeting of the Inorganic Nomenclature Commission, Organic Nomenclature Commission, Biological Nomenclature Commission, Commission on Physico-Chemical Symbols and Terminology and representatives of the IUB Commission on Enzymes . . . . .	Saturday, 29, 9.00–12.00
Commission on High Temperatures and Refractories . . . . .	two meetings, possibly on 27 and 28 August
Subcommission on Gases . . . . .	either 27 or 28 August
Subcommission on Condensed States . . . .	either 27 or 28 August
Commission on Geochemistry . . . . .	Wednesday, 26, afternoon Thursday, 27, all day

## (3) ORGANIC CHEMISTRY SECTION

Section Committee . . . . .	Wednesday, 26, 17.00–19.00
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Nomenclature Commission . . . . .	at Bad Schachen from 17–22 August, and at Munich during the whole Conference (closed meeting). Thursday, 27, 14.00–17.00 (open meeting)
Joint meeting of the Organic Nomenclature Commission with the Biological Nomenclature Commission . . . . .	Friday, 28, 14.00–17.00
Joint meeting of the Organic Nomenclature Commission, Inorganic Nomenclature Com- mission, Biological Nomenclature Commission, Commission on Physico-Chemical Symbols and Terminology and representatives of the IUB Commission on Enzymes . . . . .	Saturday, 29, 9.00–12.00
Commission on Codification, Ciphering and Punched Card Techniques . . . . .	at Bad Schachen from 22–25 August, and at Munich during the whole Conference (closed meeting). Friday, 28, 9.00–12.00 (open meeting)

(4) BIOLOGICAL CHEMISTRY SECTION

Section Committee . . . . .	Wednesday, 26, 14.00 Friday, 28, 10.00
Section Committee with all Commissions . .	Thursday, 27, 10.00
Nomenclature Commission . . . . .	Monday, 24, 10.00–12.00, 14.00–17.00, 20.00–22.00 Tuesday, 25, 9.00–12.00, 14.00–17.00, 20.00–22.00 Wednesday, 26, 9.00–12.00
Joint meeting of the Biological Nomenclature Commission with the Organic Nomenclature Commission . . . . .	Friday, 28, 14.00–17.00
Joint meeting of the Biological Nomenclature Commission, Inorganic Nomenclature Com- mission, Organic Nomenclature Commission, Commission on Physico-Chemical Symbols and Terminology and representatives of the IUB Commission on Enzymes . . . . .	Saturday, 29, 9.00–12.00
Commission on Protein Standards . . . . .	Monday, 24, 10.00 Thursday, 27, 14.00
Commission on Clinical Chemistry . . . . .	does not meet
Subcommission on Clinical Enzyme Units (with representatives from IUB) . . . . .	at Starnbergersee Tuesday, 25, 14.00 .
Subcommittee on the Nomenclature of Co- enzymes (with representatives from IUB) . .	Tuesday, 25, 14.00



<i>IUB</i> Enzyme Commission . . . . .	at Starnbergersee Tuesday, 25, 10.00 Wednesday, 26, 10.00–14.00 Thursday, 27, 10.00 Friday, 28, 10.00
Joint meeting of the <i>IUB</i> Enzyme Commission and the Biological Nomenclature Commission	Thursday, 27, 14.00–17.00
<i>IUB</i> – <i>IUPAC</i> Co-ordinating Committee . . .	at Starnbergersee Monday, 24, 14.00

#### (5) ANALYTICAL CHEMISTRY SECTION

Section Committee . . . . .	Monday, 24, 9.00–13.00 (closed meeting) Wednesday, 26, 17.00–20.00 Friday, 28, 13.00–18.00
Commission on Analytical Reactions . . . .	Wednesday, 26, 9.00–12.00 Thursday, 27, 13.00–17.30
Commission on Microchemical Techniques . .	does not meet
Commission on Terminology and Expression of Analytical Results . . . . .	Tuesday, 25, 13.00–17.30 Friday, 28, 9.00–12.00
Commission on Optical Data . . . . .	Wednesday, 26, 13.00–17.30 Thursday, 27, 9.00–12.30
Commission on Electrochemical Data . . . .	Tuesday, 25, 9.00–12.30 Wednesday, 26, 9.00–12.30 Thursday, 27, 9.00 Saturday, 29, 9.00 (open meeting)
Commission on Equilibrium Data . . . . .	does not meet

#### (6) APPLIED CHEMISTRY SECTION

Section Committee . . . . .	Wednesday, 26, 14.30 *Friday, 28, 9.30
Food Division . . . . .	Thursday, 27, 14.30
Commission on Trace Elements in Food . .	Thursday, 27, 9.30
Vitamin Assay Subdivision . . . . .	does not meet
Ad Hoc Committee on Food Additives . . .	Wednesday, 2 September, 14.30
Water, Sewage and Industrial Wastes Division	2 meetings during the days when Symposium B is held, presumably 31 August to 2 September
Pulp, Paper and Board Division . . . . .	Thursday, 27, 9.30, 14.30
Plastics and High Polymers Division . . .	at Düsseldorf from 19–21 October
Crop Protection Products Division . . . .	Thursday, 27, 9.30, 14.30

Organic Coatings Division . . . . .	Thursday, 27, 9.30, 14.30 *Friday, 28, 9.30, 14.30 Saturday, 29, 9.30, 14.30
Toxicology and Industrial Hygiene Division .	Thursday, 27, 14.30 Friday, 28, 14.30
Fermentation Division . . . . .	Saturday, 29, 9.30
Commission A: Methods of Determination of Fusel Oils . . . . .	Friday, 28, 9.30, 14.30
Commission B: Methods of Characterizing and Evaluating Dried Yeasts . . . . .	Friday, 28, 9.30, 14.30
Ad Hoc Committee to consider whether a Chemical Engineering Division should be formed . . . . .	will be decided later
Oils and Fats Division . . . . .	Thursday, 27, 9.30, 14.30 *Friday, 28, 9.30, 14.30
Ad Hoc Committee on Surface Activity . . .	does not meet

\*Overlapping, a change might therefore be necessary!

*Note:* Some of the dates given in this Draft Programme have been fixed arbitrarily and may be changed again. The Presidents of Sections are invited to inform the Secretary General of any suggested modification at their earliest convenience.

### Invitations

*Tuesday, 25 August, 1959:* On behalf of the Organizing Committee of the XVIIth International Congress of Pure and Applied Chemistry, Professor E. WIBERG, President, invites the members of the Bureau, Presidents and Secretaries of Sections, Divisions and Commissions and their ladies to dinner at the Hotel "Bayerischer Hof".

*Saturday, 29 August, 1959:* Professor C. WURSTER, President of the Gesellschaft Deutscher Chemiker invites all members of the Council to a luncheon at the Hotel "Vier Jahreszeiten".

## (b) XVIIth Congress—30 August–6 September, 1959

### A. CONGRESS ON INORGANIC CHEMISTRY

The XVIIth Congress which is concentrated on inorganic chemistry will comprise 10 "sections":

- (1) Compounds with metal-carbon bonds
- (2) Chemistry of hydrides
- (3) Chemistry of actinides and lanthanides
- (4) Chemistry of fluorine and fluorides
- (5) Preparation of super-purity metals
- (6) Water-like solvents
- (7) Homogeneous and heterogeneous gas equilibria
- (8) Semi-conductors and compounds of semi-metals
- (9) Ternary oxydes and sulphides
- (10) Miscellaneous papers.

The Organizing Committee at Munich has invited six personalities from five different countries to deliver Main Lectures of one hour each:

- O. A. REUTOW, Moscow (USSR): Bildungsmechanismus der Metall-/Kohlenstoff-Bindung und einige Aspekte über die Reaktionsfähigkeit metallorganischer Verbindungen der Schwermetalle
- H. J. EMELÉUS, Cambridge (England): Compounds of fluorocarbon radicals with metals and non-metals
- A. B. BURG, Los Angeles (USA): Chemical behaviour and bonding of boron-hydride derivatives
- V. GUTMANN, Vienna (Austria): Ionen-Reaktionen der nicht-wässrigen Lösungen
- B. B. CUNNINGHAM, Berkeley (USA): Comparative chemistry of the actinide and lanthanide elements
- J. BÉNARD, Paris (France): Recherches récentes sur la réaction d'oxydation et de sulfuration des métaux au voisinage des conditions d'équilibre
- Twelve Section Lectures of 45 minutes each will be delivered by personalities from six different countries:
- C. C. ADDISON, Nottingham (England): The use of non-aqueous solvents in preparative inorganic chemistry
- C. S. FULLER, Murray Hill (USA): Chemical equilibria and reactions in semi-conductors
- G. WILKINSON, London (England): Some aspects of transition metal to carbon bonds in metal carbonyls, cyanides and unsaturated hydrocarbon complexes
- E. W. GORTER, Eindhoven (Holland): Some structural relationships in ternary transition metal oxides and relation between crystal structure and magnetic structure of some transition metal oxides
- J. CHATT, Welwyn (England): The hydrides and complex hydrides of the transition metals
- A. E. VAN ARKEL, Leiden (Netherlands): Überblick über Darstellung und Eigenschaften reiner Metalle
- G. CHAUDRON, Paris (France): Sur les propriétés nouvelles des métaux de haute pureté obtenus par des méthodes physiques telles que la technique de la zone fondue
- K. WIELAND, Basle (Switzerland): Berechnung und optische Messung von Gasgleichgewichten bei hohen Temperaturen
- M. HAÏSSINSKY, Paris (France): La chimie des cis- et trans-uraniens comparée à la chimie des lanthanides
- G. H. CADY, Seattle (USA): Hypofluorites
- H. C. BROWN, Lafayette (USA): The reactions of alkali metal hydrides and borohydrides with Lewis acids of boron and aluminium
- E. ROCHOW, Cambridge (USA): From structure to syntheses of organo-metallic compounds

All these lectures will be held in the great lecture theatre "Bayernhalle". Applications to read original papers have been received from some 600 chemists from all over the world. These short papers will be delivered in ten simultaneous sessions in the "Liebig-Halle" at Munich.

## B. SYMPOSIA ON BIOCHEMISTRY

The two symposia on biochemistry ("Natural pigments and their biogenesis" and "Structure, biogenesis and synthesis of biologically important oligopeptides") will be opened on Wednesday, 2 September, 1959, by a general lecture by A. BUTENANDT, Munich, on "Neue Naturfarbstoffe, ihre Biogenese und physiologische Bedeutung".

The Organizing Committee has invited 11 biochemists to read Section Lectures related to the subjects listed above, viz.:



*Symposium on Natural Pigments and their Biogenesis*, 2–4 September, 1959

J. HARLEY-MASON, Cambridge (England): The biosynthesis and structure of tyrosine melanin

H. S. FORREST, Austin (USA): Aspects of pteridine biosynthesis

E. C. GROB, Bern (Switzerland): Über die Biogenese der Carotinoide in pflanzlichen Organismen

A. J. BIRCH, Manchester (England): lecture on anthocyanins

Other Section Lectures include:

pyrrol pigments

condensed quinone pigments

phenoxazine, phenazine and phenthiazine pigments

*Symposium on the Structure, Biogenesis and Synthesis of Biologically Important Oligopeptides*, 5 September, 1959

P. DESNUELLE, Paris (France): Sur quelques peptides particuliers en enzymologie

R. SCHWYZER, Basle (Switzerland): Synthesen von hormonaktiven Peptiden

J. C. SHEEHAN, Cambridge (USA): Cyclic peptides with antibiotic action

F. ŠORM, Prague (Czechoslovakia): Peptidbezirke identischer Struktur in verschiedenen Enzymen

Contributions to the Symposia on Biochemistry will be given by another 40 biochemists from all over the world.

#### C. SYMPOSIA ON APPLIED CHEMISTRY

Three symposia will be organized in the field of the Applied Chemistry Section of IUPAC:

“Reactions at ultra-high pressure”

“Removal and utilization of biological and industrial waste products”

“Food additives and residues of pesticides in foods”

The opening lecture will be given by R. H. WENTORF, Jr., Schenectady (USA), on “High pressure and synthetic diamonds”. This lecture will be delivered on Sunday morning, 30 August, 1959, in the “Bayernhalle”, following the inaugural session of the XVIIth International Congress of Pure and Applied Chemistry.

Section Lectures will be given by:

*Symposium on Reactions at Ultra-High Pressure*, 31 August–1 September, 1959

I. KRITSCHESKY, Moscow (USSR): Thermodynamik der Systeme bei hohen und höchsten Drucken

B. VODAR, Paris-Bellevue (France): Quelques propriétés physiques des gaz comprimés et interactions moléculaires

S. D. HAMANN, Sydney (Australia): Ionization at high pressures

*Symposium on Removal and Utilization of Biological and Industrial Waste Products*, 31 August–2 September, 1959

H. LUNDIN, Stockholm (Sweden): Treatment of domestic and municipal waste water, giving special consideration to microbiological processes

A. KRUL, Delft (Holland): Treatment of industrial waste products, giving special consideration to microbiological processes

F. GUILLOT, Paris (France): Elimination des résidus radio-actifs

*Symposium on Food Additives and Residues of Pesticides in Foods (Toxicology and Analysis)*, 3-5 September, 1959

C. A. FRAZER, Birmingham (England): Food additives—toxicological problems

O. HÖGL, Bern (Switzerland): Analytik der Lebensmittel-Zusatzstoffe

L. W. HAZLETON, Falls Church (USA): The safety of pesticide chemicals—a review of modern concepts and practices

F. A. GUNTHER, Riverside (USA): Analytical evaluations of residues of pesticide chemicals in foods and feeds—a review of modern concepts, practices and problems

Moreover, some 30 applications to present a paper have been received.

OTHER IUPAC SYMPOSIA

The following symposia will be held under the auspices of the International Union of Pure and Applied Chemistry (but not within the framework of the XVIIIth Congress):

*Symposium on Thermodynamics*, Wattens (near Innsbruck, Austria), 20-25 August, 1959

This symposium is held by the IUPAC Commission on Chemical Thermodynamics, the Sub-Commission on Experimental Thermochemistry and the Sub-Commission on Experimental Thermodynamics (Physical Chemistry Section) in conjunction with the Deutsche Bunsen-Gesellschaft für Physikalische Chemie.

For further information please apply to the Secretary of the Deutsche Bunsen-Gesellschaft: Dr. F. VORLÄNDER, Carl-Bosch-Haus, Varrentrappstrasse 40-42, Frankfurt/M (Germany).

*Symposium on Geochemistry*, Göttingen, 21-22 August, 1959

This symposium is organized by the IUPAC Commission on Geochemistry (Inorganic Chemistry Section). It will be followed by two days' field excursions.

The topics for discussion at the symposium are:

- (1) Stable nuclides in geochemistry
- (2) Long-lived radionuclides in natural systems
- (3) Geochemistry of the halogens
- (4) Geochemical aspects of life on earth

Introductory lectures will be held by MESSRS. RANKAMA, HARRISON BROWN, CORRENS, OPARIN and UREY.

The excursions will comprise a day's visit to the Harz and another to the Zechstein salt deposit along the Werra.

For further information please contact Professor C. W. CORRENS, Mineralogische Anstalten der Universität, Lotzestrasse 16-18, Göttingen (Germany).

*Symposium on Macromolecules*, Wiesbaden, 12-16 October, 1959

This symposium is arranged by the IUPAC Commission on Macromolecules (Physical Chemistry Section) in conjunction with the International Unions of Pure and Applied Physics, Physiological Sciences and Crystallography.

All further information can be obtained from Dr. W. MAUSS, c/o Kalle & Co., Rheingaustrasse 25, Wiesbaden-Biebrich (Germany).

*Symposium on Aging of Plastics*, Düsseldorf, 19 October, 1959

This symposium is arranged by the IUPAC Plastics and High Polymers Division (Applied Chemistry Section). It will be held prior to the 8th German Plastics Congress which will also be taking place at Düsseldorf from 20–21 October, 1959.

Abstracts of all papers to be presented at the Congress on Inorganic Chemistry and during the various symposia will be printed in advance and handed over to all members of the Congress.

So far, applications for attendance at the Congress have been received from some 3000 persons.

Beside the scientific and administrative programmes, a very promising programme of social events and excursions has been established by the Organizing Committee at Munich under the presidency of Professor E. WIBERG in co-operation with our German colleagues at the universities, the Technische Hochschule of Munich, and of the German chemical industry. It is not possible here to describe the whole programme; an excerpt may be sufficient to give an idea of the plans made:

Saturday, 29 August, 1959:	Reception given by the Organizing Committee at the German Museum to welcome the members of the Congress
Sunday, 30 August, 1959:	Opening ceremony of the XVIIIth Congress. Folkloristic afternoon (invitation by the City of Munich)
Monday, 31 August, 1959:	Opera "Arabella" by Richard Strauss Operetta "Der Zigeunerbaron" by Johann Strauss
Tuesday, 1 September, 1959:	Opera "Die Hochzeit des Figaro" by Wolfgang Amadeus Mozart
Wednesday, 2 September, 1959:	Opera "Der Rosenkavalier" by Richard Strauss Symphonic concert by the Symphonic Orchestra of the Bayerischer Rundfunk
Thursday, 3 September, 1959:	Reception given by the Federal Government and the Bavarian Government in honour of the foreign Congress members in the premises of the "Residenz"
Friday, 4 September, 1959:	Boat trip with dance on Starnberger Lake
Saturday, 5 September, 1959:	"The Congress dances"—social evening—in all rooms of "Mathäuser Stadt"

An interesting programme for the ladies of the Congress members will also be arranged. Moreover, excursions will be organized during and after the Congress to various chemical plants and also to tourist places.

All enquiries and correspondence relating to the XVIIIth International Congress of Pure and Applied Chemistry should be directed to

Generalsekretariat des XVII. Internationalen Kongresses  
für reine und angewandte Chemie  
Meiserstrasse 1  
Munich 2 (Germany)



## VI. XXIst CONFERENCE AND XVIIIth CONGRSS—1961

The problem regarding the XXIst Conference and the XVIIIth Congress has been discussed by the Executive Committee at its 41st meeting held in Moscow from 23–25 March, 1959.

An excerpt of the Minutes of this meeting reads as follows:

*“Proposal to the Bureau, then to the Council regarding place and date of the XXIst Conference and the XVIIIth Congress in 1961.*

Two invitations have been received from the National Research Council of Canada and from the Academy of Sciences of the USSR to organize the XXIst Conference and the XVIIIth Congress in 1961 in their respective countries. On behalf of the Union thanks have been extended to the inviting countries by the Secretary General. The Executive Committee unanimously expressed its willingness to accept the Russian invitation as soon as possible.

Professor A. N. NESMEYANOV, President of the Academy of Sciences of the USSR who, in spite of his heavy burden during the VIIIth Mendeleiev Congress, was kind enough to attend the meeting of the Executive Committee, was invited to take the floor. He drew the attention of the Committee to the fact that it would not be feasible to have two congresses in the USSR in 1961 but expressed the wish that IUPAC would accept to come to this country at a later date. The Executive Committee

*Resolved:*

- (i) to thank the USSR and Canada for their kind invitations;
- (ii) to recognize the special circumstances expressed by Professor NESMEYANOV;
- (iii) to propose to the Bureau and to the Council that the XXIst Conference and the XVIIIth Congress should be convened in 1961 in Canada. The Congress should feature physical chemistry including spectroscopy, analytical chemistry, industrial chemistry as well as symposia on selected topics of organic chemistry;
- (iv) to request the National Research Council of Canada to make proposals as to the exact date of the XXIst Conference and the XVIIIth Congress;
- (v) that the XXIIInd Conference and the XIXth Congress should be held in the USSR, provided that by 1963 sufficient financial means are available to the Union. (It has to be borne in mind that the cost for a Conference in Moscow would be some 100.000 \$ higher than for a Conference held for instance in London. If no additional finances are available by that time, the 1963 Conference and Congress should be held in Western Europe, say London, provided that an invitation is received);
- (vi) to accept the kind invitation extended by Professor NESMEYANOV on behalf of the Academy of Sciences of the USSR to convene the next Bureau meeting in his country in 1960, during the week after Easter, either in the Crimea or in Azerbaijan in order that the other members of the Executive Committee who have not been in Moscow and the members of the Bureau may visit this country and also as a compensation that the 1961 Conference and Congress cannot be held in Moscow.”

## VII. CALENDAR

<i>June</i> <span style="float: right;"><i>1959</i></span>		
1-3	*Symposium on Activation Analysis (International Atomic Energy Agency, Kärntnerring 11, Vienna/Austria)	Vienna (Austria)
<i>July</i>		
1-4	3rd General Assembly of the ICSU- Abstracting Board (Professor G. A. BOUTRY, 292, rue St-Martin, Paris-3 <sup>e</sup> /France)	Constance (Germany)
15-17	Symposium on Fluorine Chemistry (The Chemical Society, Burlington House, Piccadilly, London W.1./GB)	Birmingham GB
<i>August</i>		
20-25	*Symposium on Chemical Thermodynamics (Dr. F. VORLÄNDER, Carl-Bosch-Haus, Varrentrappstrasse 40-42, Frankfurt M/ Germany)	Wattens (near Innsbruck) (Austria)
21-22	*Symposium on Geochemistry (Professor C. W. CORRENS, Mineralogische Anstalten der Universität, Lotzestrasse 16/18, Göttingen/ Germany)	Göttingen (Germany)
26-29	*XXth Conference of the International Union of Pure and Applied Chemistry (Dr. R. MORE, Secretary General, c/o Sandoz Ltd., Basle/ Switzerland)	Munich (Germany)
<i>August-September</i>		
30-6	*XVIIth International Congress of Pure and Applied Chemistry (Generalsekretariat des XVII. Internationalen Kongresses für reine und angewandte Chemie, Meiserstrasse 1, Munich/Germany)	Munich (Germany)
31-1	*Symposium on Reactions at Ultra-High Pressure	Munich
31-2	*Symposium on Removal and Utilization of Biological and Industrial Waste Products	Munich
2-4	*Symposium on Natural Pigments and their Biogenesis	Munich
3-5	*Symposium on Food Additives and Residues of Pesticides in Foods (Toxicology and Analysis)	Munich
5	*Symposium on the Structure, Biogenesis and Synthesis of Biologically Important Oligopeptides	Munich
<i>September</i>		
7-12	European Molecular Spectroscopy Group 4th Biennial Meeting (Dr. MANGINI, Viale Risorgimento 4, Bologna/Italia)	Bologna (Italy)
9-12	40th Anniversary of the Polish Chemical Society and VIth National Congress of Polish Chemists	Warsaw (Poland)
10-11	International Symposium on Humic Acid (Dr. T. SWAIN, Low Temperature Research Station, Downing Street, Cambridge/England)	Dublin (Ireland)

*September-October*

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|------|---|-------------------------|
| 25-3 | XXIInd Meeting of the Bureau and XIth Meeting of the Executive Board of International Council of Scientific Unions (Dr. R. FRASER, Administrative Secretary, Paleis Noordeinde, The Hague/Netherlands)        | The Hague (Netherlands) |
| 29-2 | 11th Meeting of the Comité international de Thermodynamique et de Cinétique électrochimiques (CITCE—Dr. N. IBL, Secretary General, Federal Institute of Technology, Universitätstrasse 6, Zurich/Switzerland) | Vienna (Austria)        |

*October*

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| 6-9   | International Symposium on High Temperature Technology (Stanford Research Institute, Box 734, Menlo Park/California-USA)   | Asilomar (California-USA) |
| 12-16 | Symposium on Macromolecules (Dr. W. MAUSS, c/o Kalle & Co., Rheingaustrasse 25, Wiesbaden-Biebrich/Germany)  | Wiesbaden (Germany)       |
| 17-25 | International Trade Fair of the Plastics Industry 1959 ("Kunststoffe 1959")  | Düsseldorf (Germany)      |
| 19    | Symposium on Aging of Plastics (arranged by the IUPAC Plastics and High Polymers Division)   | Düsseldorf                |
| 20-21 | 8th German Plastics Congress: "Deutsche Kunststoff-Tagung" (Arbeitsgemeinschaft Deutsche Kunststoff-Industrie, Haus der Chemie, Karlstrasse 21, Frankfurt-M/Germany) | Düsseldorf                |
| -     | 6th International Congress of Therapeutics (Professor FONTAINE, President, Doyen de la Faculté de Strasbourg, Strasbourg/France)                                     | Strasbourg (France)       |

The Symposium on Therapeutical Organic Chemistry scheduled for 1959 had to be postponed.

*1960*

*May-June*

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| 30-4 | IVth International Symposium on the Reactivity of Solids (Ir. G. VAN GIJN, Technische Hogeschool Eindhoven, Insulindelaan 2, Eindhoven/Netherlands) | Amsterdam (Netherlands) |
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*July*

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| 4-9   | 2nd International Congress of Catalysis (Professor EMSCHWILLER, Ecole supérieure de Physique et de Chimie, 10, rue Vauquelin, Paris-5 <sup>e</sup> /France) | Paris (France) |
| 18-26 | Tercentenary of the Royal Society (Dr. D. C. MARTIN, Assistant Secretary, The Royal Society, Burlington House, Piccadilly, London W.1./GB)                  | London (GB)    |

*August*

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| 14-19 | *3rd International European Congress on Clinical Chemistry (Dr. C. P. STEWART, Department of Clinical Chemistry, Royal Infirmary, Edinburgh/Scotland) | Edinburgh (Scotland) |
|-------|---|----------------------|



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|-------|---|---|
| 15-25 | *Symposium on the Chemistry of Natural Products<br>(Dr. A. L. G. REES, CSIRO, Division of<br>Industrial Chemistry, Box 4331, GPO,<br>Melbourne/Australia) | Melbourne,<br>Canberra and<br>Sydney<br>(Australia) |
|-------|---|---|

1961

*August*

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|-------|---|---|
| 2-5   | *XXIst Conference of the International Union<br>of Pure and Applied Chemistry (Dr. R. MORE,<br>Secretary General, c/o Sandoz Ltd., Basle/<br>Switzerland)   | Canada                                    |
| 6-12  | *XVIIIth International Congress of Pure and<br>Applied Chemistry—physical chemistry<br>including spectroscopy, analytical chemistry,<br>industrial chemistry and symposia on organic<br>chemistry (Professor LEO MARION, National<br>Research Council, Ottawa 2/Canada) | Canada                                    |
| 20-25 | Gordon Research Conferenc, Inorganic Section  | New Hampton<br>(New<br>Hampshire,<br>USA) |

*August-September*

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| 27-1 | 5th International Conference on Co-ordination<br>Chemistry | Detroit<br>(Mich., USA) |
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*September*

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| 3-8 | National Meeting of the American Chemical<br>Society | Chicago<br>(Ill., USA) |
|-----|--|------------------------|

\*all these events are organized under direct sponsorship of IUPAC

## VIII. BIBLIOGRAPHY

*Experimental Thermochemistry.* Published under the direction of Prof. F. D. ROSSINI, President to the Commission of Chemical Thermodynamics in April 1956 by Interscience Publishers, Inc., 250 Fifth Avenue, New York 1

*International Symposium on Macromolecular Chemistry* (Consiglio nazionale delle Ricerche), Milano-Torino, 26 September–2 October, 1954.—Outside Italy, published by Interscience Publishers, Inc., 250 Fifth Avenue, New York 1

*Experientia Supplementum II.* XIVth International Congress of Pure and Applied Chemistry Zurich, 21–27 July, 1955.—Main and Section Lectures.—Information may be received from Dr. R. MORF, IUPAC, c/o Sandoz Ltd., Basle 13, Switzerland.—Birkhäuser-Verlag, Basle

*Summaries of Papers* held during the XIVth International Congress of Pure and Applied Chemistry, Zurich 1955.—Information may be obtained from Dr. R. MORF, IUPAC, c/o Sandoz Ltd., Basle 13, Switzerland.—Berichthaus, Zurich

*Comptes Rendus of the XVIIIth Conference.* Published under the direction of Prof. R. DELABY, 4, avenue de l'Observatoire, Paris-6e.—Copies may be bought from the Secretary General; price: \$ 4.— plus postage

*Reprints of the Comptes Rendus of the XVIIIth Conference, Zurich 1955* — Copies may be bought from the Secretary General—at cost-price:

Booklet 2 Organic Chemistry Section Organic Nomenclature, \$ 1.—

Booklet 3 Biological Chemistry Section Nomenclature of Steroids, \$ -.50

*Congress Handbook of the XVth International Congress of Pure and Applied Chemistry*, Lisbon 1956.—Copies may be obtained from Mr. A. RALHA, Instituto Superior Técnico, Lisbon

*Tables de Constantes sélectionnées:* Pouvoir rotatoire naturel. I. Stéroïdes 1956

Prix: broché	Fr.fr. 12000
relié	Fr.fr. 12900

Diamagnétisme et Paramagnétisme. Relaxation paramagnétique 1957

Prix: broché	Fr.fr. 8800
relié	Fr.fr. 9700

Information may be obtained from Mme S. ALLARD, 18, rue Pierre-Curie, Paris-5e

*Modern Electroanalytical Methods.* Proceedings of the International Symposium on Modern Electrochemical Methods of Analysis, Paris 1957.—Edited by Prof. CHARLOT and published by Elsevier Publishing Co., Amsterdam

*Colloque sur le Dosage des Poussières silicieuses dans les Atmosphères industrielles..* By the Toxicology and Industrial Hygiene Division

*Report on Atomic Weights for 1954–1955.* Dr. E. WICHERS.—Published by the Journal of the American Chemical Society in April 1956

*Experientia Supplementum V.* XVth International Congress of Pure and Applied Chemistry, Lisbon 1956.—Information may be received from: Birkhäuser-Verlag, Basle.—Price: Sw.Fr. 32.—

*Symposium on Macromolecules*, Rehovot, 3–6 April, 1956.—Journal of Polymer Science.—Published by Interscience Publishers, Inc., 250 Fifth Avenue, New York 1

*Stability Constants of Metal-Ion Complexes with Solubility Products of Inorganic Substances*, Volume I. By MESSRS. J. BJERRUM, G. SCHWARZENBACH and L.G. SILLÉN.—Published by the Chemical Society of London, London W.1, Burlington House

*Tables des Valeurs sélectionnées de Polarographie.* By Prof. SEMERANO, University of Padova.—Published by the Consiglio Nazionale delle Ricerche Roma

*Experientia Supplementum VII.* XVIth International Congress of Pure and Applied Chemistry, Paris 1957.—Information can be obtained from: Birkhäuser-Verlag, Basle—Price: Sw.Fr. 36.—

*Comptes Rendus of the XIXth Conference*, Paris 1957.—Copies may be bought from the Secretary General; price: \$ 4.— plus postage.—Printed by Berichthaus Zurich

*Reprint of the Comptes Rendus of the XIXth Conference*, Paris 1957. Inorganic Chemistry Section: Atomic Weights—The radioactive Elements—Copies may be bought from the Secretary General; price: \$ -.50 plus postage

*Silicon, Sulphur, Phosphates.* Colloquium of the Section for Inorganic Chemistry, Münster, 2–6 September, 1954—Published by Verlag Chemie GmbH, Pappelallee 3, Weinheim/Bergstrasse (Germany)

*System of International Chemical Notation.* By Codification, Cipherring and Punched Card Techniques Commission.—Published by Longman's Green & Co., London W.1

*Definitive Rules for the Nomenclature of Organic Chemistry.* Section A: Hydrocarbons. Section B: Fundamental Heterocyclic Systems.

*Definitive Rules for the Nomenclature of Steroids.* Organic and Biological Chemistry. *Tentative Rules for Nomenclature in the Vitamin-B<sub>12</sub> Field.* Organic Chemistry. July 1957.—Information may be obtained from: Butterworths Scientific Publications Ltd., 4–5 Bell Yard, London W.C.2  
*English version*

*Méthodes unifiées pour le dosage des substances toxiques dans les atmosphères industrielles.* By Toxicology and Industrial Hygiene Division

*Stability Constants of Metal—Ion Complexes with Solubility Products of Inorganic Substances.* Volume II. By Messrs. J. BJERRUM, G. SCHWARZENBACH and L. G. SILLÉN.—Published by The Chemical Society of London, Burlington House, London W.1

*Oxidation-Reduction Potentials.* By Commission on Electrochemical Data  
*Symposium on Macromolecules*, Prague, 9–15 September, 1957.—Published in the Journal of Polymer Science and in the "Collection of the Czech Chemical Communications"

*International Symposium on the Chemistry of Co-ordination Compounds*, Rome, 15–21 September, 1957.—To be obtained from: Consiglio Nazionale delle Ricerche Piazzale delle Scienze, 7, Roma.—Outside Italy: Pergamon Press Ltd., 4 Fitzroy Square, London; Pergamon Press Ltd., 122 East 55th Street, New York

*Tables de Constantes sélectionnées: Potentiels d'oxydo-réduction – Pouvoir rotatoire naturel. II. Triterpénoides.* – Information may be obtained from Mme S. ALLARD, 18, rue Pierre-Curie, Paris-5<sup>e</sup>

*Comptes Rendus of the 8th Meeting of the Comité international de Thermodynamique et de Cinétique électrochimiques CITCE*, Madrid 1956.—Published by Butterworths Scientific Publications Ltd., 4–5 Bell Yard, London W.C.2

*Symposium on the Structure of Proteins.* By the Biological Chemistry Section.—Published in September 1958, for Great Britain by Methuen & Co.; for the USA by John Wiley, New York 16.—Price: \$ 7.75

*Nomenclature of Inorganic Chemistry 1957.* Information may be obtained from: Butterworths Scientific Publications Ltd., 4–5 Bell Yard, London W.C.2

*Assay of Vitamin A Oils; Report on the Vitamin D Bioassay of Oils and Concentrates; Vitamin A Potency of Beta-Carotene.* By Vitamin Assay Subdivision.—Published by Butterworths Scientific Publications Ltd., 4–5 Bell Yard, London W.C.2



*Determination of Copper Content of Foodstuffs (Photometric Method).* By Trace Elements in Food Subdivision.—Published by Butterworths Scientific Publications Ltd., 4-5 Bell Yard, London W.C.2

*Report on Education and Training in the Paint Industry.* By Organic Coatings Division.—Published by Butterworths Scientific Publications Ltd., 4-5 Bell Yard, London W.C.2

*Spectrophotometric Data of Compounds used in Inorganic Colour Analysis.* By Optical Data Commission

*Proceedings of the International High-Polymer Conference*, Nottingham, 21-24 July, 1958.—Published by Interscience Publishers, Inc., 250 Fifth Avenue, New York 1

*Mémoires de la Section de Chimie minérale.* Published in 1957 by SEDES 5, place de la Sorbonne, Paris-5<sup>e</sup>.—Price: Fr.fr. 5000

*La Diffusion dans les Liquides et dans les Gels.* Published in the "Journal de Chimie Physique" (issues of November 1957, December 1957, February 1958 and April 1958).—Information can be obtained from: Journal de Chimie Physique, (service de M. CHATELET), 11, rue Pierre-Curie, Paris-5<sup>e</sup>.—Price: Fr.fr. 600 per issue or Fr.fr. 2400 for the four issues

*La Combustion dans les Mélanges gazeux.* Published in the Review of the "Institut du Pétrole" (April 1958 issue).—Information can be obtained from: Société des Editions TECHNIP, 2, rue de Lubeck, Paris-16<sup>e</sup>.—Price: Fr.fr. 4475

To be published:

*Report of the Water, Sewage and Industrial Wastes Division.*—Published under the direction of Prof. W. F. KRUL

*Evaluation of Carotene in Foods.* By Food Division

*Determination of Lead in Foods.* By Trace Elements in Food Subdivision

*Reports and Proceedings of Commission.* By Geochemistry Commission

*Proceedings of Joint Conference on Thermodynamic and Transport Properties of Fluids*, 1957. By Sub-Commission on Experimental Thermodynamics

*Classification on High Polymers.* By Plastics and High Polymers Division

*Report on Data and Standards.* By Commission on Physico-Chemical Data and Standards

*Symposium Papers*, etc. By the Commission on Physico-Chemical Data and Standards

*Terms used in Testing of Materials.* By Commission on Terminology and Expression of Analytical Results

*Reprints Symposium Lisbon (1956).* By Toxicology and Industrial Hygiene Division

*1st Supplement to 4th Edition: Méthodes unifiées pour l'analyse des matières grasses.* By Oils and Fats Division

*Dissociation Constants of Acids and Bases.* By Electrochemical Data Commission

*Experimental Thermochemistry.*—Published under the direction of Prof. F. D. ROSSINI.—Volume II, by Interscience Publishers, Inc., 250 Fifth Avenue, New York 1

## IX. EDITORIAL

6

Professor W. KUHN, Director of the Institute of Physical Chemistry of the University of Basle and President of the Physical Chemistry Section of IUPAC, has been awarded the title of "Doctor honoris causa" by the Faculty of Medicine of the University of Kiel (Germany) and by the Faculty of Natural Sciences of the University of Heidelberg (Germany).

Sir E. CHARLES DODDS of London, Honorary Treasurer of IUPAC, has been awarded a high honorary degree by the University of Chicago (Ill., USA).

The Secretary General believes that he is acting on behalf of the International Union of Pure and Applied Chemistry if he extends his sincerest congratulations to Professor KUHN and Sir CHARLES DODDS.

## Appendix A

### BUDGET FOR 1959

The Honorary Treasurer  
to the members of the Bureau  
to the Presidents and Secretaries of Divisions and Commissions  
to the Member Countries

*Re:* Budget for 1959

Dear Sirs,

Following a decision taken at the 40th meeting of the IUPAC Executive Committee in Washington, 8–12 October, 1958, the Honorary Treasurer and the Secretary General sent out circular letter No. 2281, dated 27 October, 1958, two paragraphs of which read as follows:

The Executive Committee resolved:

- (vii) That Chairmen of the Sections send to the Secretary General, at the earliest date possible, and before 1 December, the list of those Committees and Commissions who urgently need financial assistance in 1959;
- (viii) that the Honorary Treasurer will then consider this list and draft the final budget for 1959.

This decision proved to be effective, especially thanks to the help of the officers and of many Titular Members of the Union. As a matter of fact, the Secretary General received in due course various answers and it is hoped that the expenses budgeted for 1959 can be reduced considerably. Several Commissions have decided not to meet in 1959 and many titular members—taking into account the Union's financial situation—have expressed the willingness to travel to Munich under their own steam.

As a result of this careful investigation and of the answers received I herewith submit to you the final budget for 1959. This budget is still unbalanced. The possible surplus of the financial year 1958 will help to bear these expenses.

It is well understood that the figures given hereinafter are to be considered maximum expenses. No Section, Division or Commission will be authorized to overdraw the amounts scheduled in the budget, nor is it entitled to dispose of a possible surplus in case expenses in 1959 will be lower than budgeted. Economies made on the amounts budgeted have to be returned to the central IUPAC funds.

The budget for 1959 is appended.

Yours sincerely,

23 December, 1958

Sir E. CHARLES DODDS  
Honorary Treasurer



PHYSICAL CHEMISTRY SECTION

Section Committee . . . . .	\$ 1 391
<i>Commissions:</i>	
Physico-Chemical Symbols and Terminology . . . . .	1 785
Chemical Thermodynamics . . . . .	1 302
Electrochemistry . . . . .	1 453
Macromolecules . . . . .	1 719
Physico-Chemical Data and Standards . . . . .	864
Molecular Structure and Spectroscopy . . . . .	1 553
<i>Symposia:</i>	
Macromolecules . . . . .	2 000
Chemical Thermodynamics, incl. Bulletin . . . . .	3 250
Total . . . . .	<u>\$15 317</u>

INORGANIC CHEMISTRY SECTION

Section Committee . . . . .	\$ 867
<i>Commissions:</i>	
Atomic Weights . . . . .	882
Nomenclature . . . . .	1 633
Geochemistry . . . . .	2 008
<i>High Temperatures and Refractories:</i>	
(a) Subcommittee on Gases . . . . .	1 169
(b) Subcommittee on Condensed States . . . . .	642
<i>Symposia:</i>	
Geochemistry . . . . .	1 000
Total . . . . .	<u>\$ 8 201</u>

ORGANIC CHEMISTRY SECTION

Section Committee . . . . .	\$ 1 165
<i>Commissions:</i>	
Nomenclature . . . . .	2 216
Codification, Ciphering and Punched Card Techniques . . . . .	968
Total . . . . .	<u>\$ 4 349</u>

BIOLOGICAL CHEMISTRY SECTION

Section Committee . . . . .	\$ 1 268
<i>Commissions:</i>	
Nomenclature . . . . .	1 903
Proteins Standards . . . . .	1 516
Total . . . . .	<u>\$ 4 687</u>

ANALYTICAL CHEMISTRY SECTION

Section Committee . . . . .	\$ 2 101
<i>Commissions:</i>	
Analytical Reactions . . . . .	1 750

Terminology and Expression of Analytical Results . . . .	1 287
Optical Data . . . . .	1 016
Electrochemical Data . . . . .	1 786
Total . . . . .	<u>\$ 7 941</u>

#### APPLIED CHEMISTRY SECTION

Section Committee . . . . .	\$ 1 666
<i>Divisions:</i>	
Food . . . . .	967
Water, Sewage and Industrial Wastes . . . . .	989
Pulp, Paper and Board . . . . .	1 925
Crop Protection Products . . . . .	945
Organic Coatings . . . . .	975
Oils and Fats . . . . .	1 027
<i>Commission:</i>	
Toxicology and Industrial Hygiene . . . . .	814
<i>Subdivisions:</i>	
Food Additives . . . . .	168
Oligoelements in Food . . . . .	296
Fermentation . . . . .	975
Ad Hoc Committee on Chemical Engineering . . . . .	577
Surface Activants . . . . .	276
Total . . . . .	<u>\$11 600</u>
Publications . . . . .	\$ 3 500
Postage fees . . . . .	2 000
Publications Committee . . . . .	910
Editor . . . . .	2 000
Council, Bureau and Executive Committee meetings . . . .	11 200
Contribution to ICSU (2%) . . . . . appr.	600
Clerical Assistants . . . . .	5 600
Total . . . . .	<u>\$25 810</u>

Total expenditure (financial year 1959) . . . . .	\$77 905
Total income estimated . . . . . some	\$40 000

## Appendix B

### GENERAL REPORT TO THE INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS ON THE ACTIVITY OF THE INTERNATIONAL UNION OF PURE AND APPLIED CHEMISTRY FOR THE FISCAL YEAR 1957-1958 (14 months)

Following an invitation by UNESCO and especially by Professor PIERRE AUGER I have the honour to submit to you herewith a short report on the activity of the International Union of Pure and Applied Chemistry during the fiscal year 1957-1958.

(The most important of the activities of our Union have already been mentioned in the report established by the Secretary General of the International Union of Pure and Applied Chemistry for the General Assembly of the International Council of Scientific Unions in Washington. Moreover, further information on this same subject can be obtained from our Information Bulletins which are also distributed to ICSU and UNESCO.)

This general report for which you asked by letter of 10 February, 1959, has to be considered a summary.

The period covered by this report comprises a year without conference—conference or general assembly years (odd years) being the highlights of our activity.

The activity in 1958 was mainly characterized by the publication of the results of the 19th Conference and the 16th Congress held in Paris in 1957. Two publications by the International Union of Pure and Applied Chemistry should be noted particularly: the *Comptes Rendus* with a noteworthy work on atomic weights, and the

*Definitive Rules for the Nomenclature of Organic Chemistry*, Sections A and B,  
*Definitive Rules for the Nomenclature of Steroids*,  
*Tentative Rules for Nomenclature in the Vitamin B<sub>12</sub> Field*.

Apart from these publications the meeting of the Bureau in London on 10 and 11 April, 1958, has to be considered the most important event of our Union. It is in reply to your resolution 2.31: "... in co-operation with the United Nations, the Specialized Agencies and other appropriate international organizations to study ... scientific problems whose solution may help to improve the economic and social conditions of mankind ..." that I mention the above meeting in London.

It is well understood that the development of chemistry has always to be regarded as the "key to the improvement of the standard of living". The drafting of Nomenclature Rules, their wide dissemination as well as their translation into all important languages may be considered a first step towards improving the situation of the disinherited countries.

The food problems of populations are always based on two factors which depend almost solely on the development of chemistry in the countries concerned:

- (1) Production and distribution of fertilizers,
- (2) Action against the diseases of human, animal and vegetal life.

Apart from these most important publications attention is drawn to a project which is far from being solved and a first attempt of which is the publication by Longmans Green & Co. of an International Notation System prepared by the Commission on Codification, Ciphering and Punched Card Techniques of the International Union of Pure and Applied Chemistry.



As regards the purely scientific side of our activities, attention is called to the following events:

International High Polymer Conference

Nottingham, 21-24 July, 1958

International Symposium on Microchemistry

Birmingham, 20-27 August, 1958

Symposium on Theoretical Organic Chemistry

London, 15-17 September, 1958

VIIth Colloquium Spectroscopium Internationale

Liège, 8-12 September, 1958

In conclusion of this report let us mention our collaboration with the International Union of Biochemistry on the occasion of its 4th Congress in Vienna from 1-6 September, 1958.

Basle, 27 February, 1959

RUDOLF MORF

## Appendix C

The Australian Academy of Science  
invites to an

### INTERNATIONAL SYMPOSIUM on THE CHEMISTRY OF NATURAL PRODUCTS

The Symposium is sponsored by the Section of Organic Chemistry of the International Union of Pure and Applied Chemistry and will be held from 15 to 25 August, 1960, in Melbourne, Canberra and Sydney.

#### *Symposium President*

Sir ALEXANDER TODD, FRS, Nobel Laureate, Professor of Organic Chemistry in the University of Cambridge, England, has graciously accepted the Symposium Organizing Committee's invitation to be President of the Symposium.

#### *Scientific Programme*

The Symposium will be devoted to the organic chemistry of natural products, except macromolecular substances, the term "natural product" being used broadly to describe any substance produced by the metabolism of micro-organisms, plants and animals. In addition to the isolation, structure determination by physical and chemical methods, synthesis and general chemistry of natural products, the subject matter will include topics in biological chemistry, such as biosynthetic and metabolic studies and structure-activity relations. Papers in biological chemistry must involve the application of organic chemistry to biological problems. Communications describing the identification of known substances or dealing with methods of analysis or manufacturing processes will not necessarily be accepted.

Papers will be grouped in four sections:

- (1) *Aliphatic and Homocyclic Chemistry*, including fats and waxes, terpenes, steroids, quinones, etc.
- (2) *Heterocyclic Chemistry*, including alkaloids, flavonoids, coumarins, porphyrins, purines, pyrimidines, etc.

- (3) *Biological Chemistry*, including the chemistry of biologically active substances, biosynthesis, etc.
- (4) *Physical Methods*, including X-ray crystallography, spectroscopy, optical rotatory dispersion, magnetic resonance, etc.

The programme will include a number of *special lectures* to be delivered by chemists distinguished for their work in the subjects of the Symposium. These special lectures are:

- (1) *Symposium Presidential Lecture*; Professor Sir ALEXANDER TODD (Cambridge)
- (2) *Symposium Lectures*; four lectures, one associated with each of the main Sections of the Symposium, will be delivered by distinguished scientists
- (3) *Special Lecture* on Australian Natural Product Research; Dr. J. R. PRICE (Melbourne)
- (4) *Section Lectures*; eight lectures intended to serve as introduction to the sessions of the Symposium—two to each Section—will be included in the programme

Acceptances of invitations to deliver the Symposium and Section Lectures are not yet complete and full details will be provided in the 2nd Circular to be issued in December, 1959.

#### *Conference Literature*

The 1st Circular has been issued in spring 1959. Some 1800 copies have been circulated to individual scientists, institutions, universities, industrial organizations and IUPAC national adhering organizations covering some 79 countries. The 2nd Circular, which will contain complete programme details, including titles of the main lectures, will be circulated in December, 1959. With it final application forms for registration, titles of papers and so on will be issued.

#### *Scientific Contributions*

Scientists who may be able to attend the conference and present a scientific paper are invited to get in touch with the Symposium Organizing Committee, Box 4331, G.P.O., Melbourne, Australia, or with the Secretary General of IUPAC.

## **Appendix D**

At a meeting in Moscow A. N. TERENTIEV was kind enough to inform the Executive Committee about the work going on in his country in the field of organic nomenclature, but it has not yet been possible for the Executive Committee to study this problem carefully. A report by A. N. TERENTIEV is reproduced here for which the responsibility lies entirely with the author:

### **ON THE IUPAC RULES OF NOMENCLATURE OF ORGANIC COMPOUNDS**

The nomenclature system developed by the IUPAC has been extended for discussion by the wide circles of chemists. Though the Soviet representative took part in the latest stage of discussions and one of our proposals (about the criterion of radicals' complexity) was approved by the Commission, this was not stated in the foreword. Therefore, I think I must

express some of my considerations of which my Soviet colleagues also approve.

(1) The introductory part of the Rules states that the new nomenclature is meant primarily for the reference books and indexes, not for the oral speech. For "convenience" sake it is recommended to enumerate the radicals and to determine their seniority in alphabetic order. This means that, for instance, in English buthyl will precede ethyl, while methyl will precede propyl. The result will be that the order of enumeration for atoms will be different in different languages and the international system will not be unified.

Introduction of order of complexity alongside the alphabetic order does not make things easier, it only makes the system inconsistent, even within the limits of one national nomenclature (see examples to rule 2.4).

The general alphabetic order for radicals and functions will bring about "order" worse than any disorder.

To our mind chemical names reflecting the structure must be based upon the most conventional and reasonable (for a chemist) scientific structural logics. An organic compound is a whole, just like an organism. It should be dismembered carefully for classification.

Try to enumerate the parts of a cow in the alphabetic order, and the back will precede on the list the head, and the guts will precede the mouth. In chemistry there is a definite sense order which must be used. Nomenclature must be worked out with a view to the people who use the reference books and not to those who compose them.

(2) The Commission does not, for some unknown reason, apply the rules for choosing the main chain of the saturated hydrocarbons for the unsaturated ones. We foresee that the rules for choosing the main chain will vary with every new class of compounds. This reminds us of a house the construction of which causes every inhabitant in the upper floor to remake the house's foundation each time he wants to move his furniture. Our future is not very bright and the cause of it is that we do not want to establish general principles. Seventy years ago, at the Geneva Congress they acted differently, they stated that the forthcoming rules should not be in contradiction with the preceding ones. Seventy years have elapsed, and now we are making a step back, not forward.

(3) The number and variety of nomenclatures does not make studying the nomenclature any easier. We must keep in mind the generations to come who will study our rules. They must be simple and easy.

(4) The goal of the IUPAC is to work out international rules. But English and French versions are already different in form. For instance, in the English version, the numbers are located before the prefixes, while in French after them. The Americans will continue to locate the suffix with a number before the root (2-butene), while the Germans after the suffix (butene-2). So even here we have three different national versions.

(5) In nomenclature of cycles the enumeration rules are unsatisfactory. Moreover, for many-membered fused cycles they are even not simple as there are no strict rules for their projecting.

What can be proposed instead? There are two systems: DYSON-TAYLOR-PATTERSON and TERENTIEV-KOST-ZUCKERMANN. In the first system, the name for the cyclic nucleus seems to be good, but enumeration system is bad because it does not indicate the location of substituent. In the latter, the enumeration system is good but the name of the nucleus is too complex. Unfortunately, these two systems seem to be incompatible, though the enumeration order of the TERENTIEV-KOST-ZUCKERMANN system may be applied to the PATTERSON system. One thing is clear, and that is that the problem of nomenclature of cycles is still to be solved. It must be simple



and easy, so that when the names are composed and decyphered less mistakes are made than it happened when the names were coded according to DYSON or WISWESSER. As Professor ALLEN KENT of Cleveland has told us privately mass coding based on these systems brings a yield of 80 per cent of mistakes, and only 20 results appear to be correct. Nomenclature must not allow for this.

(6) The reader wants to perceive the logics by which the authors were guided when composing and formulating every rule of nomenclature. We think that commentaries to the rules must be published, as was done by COMBES for the Geneva rules, or VERKADE for the Liège ones.

In conclusion I want to add that our experiences in machine translation of chemical names consolidates our belief that nomenclature must be based on unified and uncontradictory logics.

### Machine Literature Searching and Chemical Nomenclature

The problem of filling in, treating, storing and delivering chemical information is closely connected with the logics of the texts to be treated, particularly with chemical texts. During a number of years we have been studying the deep inner logics of various chemical nomenclatures, our aim being, for one part, to develop the code of rules—algorithm—for machine translation of any names into formulae or codes and into standard chemical names. We have already succeeded in working out such algorithm for translating names within the range of acyclic compounds and bicyclic compounds named according to BAEYER system. We can draw some conclusions as to the relative importance of logics for nomenclature.

We must admit that we failed to work out an algorithm for translating the names of polycyclic compounds built up according to PATTERSON system. The reason for it being that the PATTERSON system, even in the form it is stated in the IUPAC rules, is not logical enough, it concerns, for instance, the rules of enumeration.

We won't go into details now, they can be developed in a private talk or a letter.

We must also point out that machine treatment of literature is greatly hampered by unjustifiedly over-excessive usage of commercial pseudo-systematic names, which make the machine "remember" an additional large amount of wording. For example, "butodione"—used for cyclic hydrazide of butylmalonic acid.

All said above about the information machines in still greater degree refers to a living man. The illogicality of the PATTERSON system or the abundance of trivial or pseudo-systematic names hampers studying and remembering in chemistry and, particularly, in organic chemistry. This reading of chemical literature becomes also more difficult for a chemist. Location of components in a complicated name and especially numerals indicating the substitution places plays an essential though not principal part. As is well known in America, France and Germany three different systems are used.

In this connection we deem it necessary to strengthen international contacts within the frames of IUPAC. We think Soviet representatives should take part in Commissions on Inorganic Nomenclature and Codification.

By the way, we do not know anything about the activities of the latter Commission. We never saw any of their reports though some of them had been published. Finally, it is necessary to work out and apply such nomenclature systems which would be as logical as possible.

Moscow, 25 March, 1959

A. TERENTIEV

## Appendix E

*Report by Sir ERIC K. RIDEAL regarding the*

### **POSSIBLE FORMATION OF A DIVISION ON SURFACE ACTIVE SUBSTANCES**

To: The Secretary of the International Union of Chemistry

Dear Sir,

I am submitting herewith my report on the suggestion that there should be, within the framework of the International Union of Chemistry in the Applied Chemistry Section, a Division on "Surface Active Substances".

As a basis for the conclusions which are detailed below I have taken the opportunity of consulting not only several members of the Council of the International Union but I have in addition had detailed correspondence with the following: Dr. FOSTER D. SNELL of the USA, Dr. DUVERGER of France and Professor REHBENDER of Moscow, USSR.

This correspondence was primarily based upon a circular letter addressed to them, a copy of which is appended. As a result it may be stated that those members of Council with whom I had conversations as well as Dr. FOSTER D. SNELL and Professor REHBENDER were in agreement with the views I expressed in my circular letter. Dr. SNELL had some qualms as to the rate at which these suggestions could be implemented. Dr. DUVERGER on the other hand believed that the Comité français de la Détergence would fulfil all the functions suggested by the International Union and that this Comité français could constitute such a Division in IUPAC, although he did envisage the possibility of his Comité, or part of it, being a commission in a division of the character that I have outlined.

I conclude that there is a strong case for the establishment in IUPAC of a Division on "Surface Activity". Whilst the enquiry came through the Applied Section of IUPAC I am not aware whether there is any machinery for a Division to be attached to both the Physical as well as to the Applied Sections, but if there were, this is a course I would recommend.

I am very much indebted to the Secretary of the Applied Section of IUPAC, Dr. BUSHILL, who has, I am afraid, had many burdens put upon his shoulders by me.

I am, Yours truly, ERIC K. RIDEAL

#### **Circular letter addressed to members of Ad Hoc Committee**

After consideration and after discussion with several members of the Bureau from different countries, I am not in favour of establishing a division on "surface active substances".

My main objection is that a division on surface active substances embraces a too restricted range of concepts and the subject is more suitable for a commission. There could, however, be made out a strong case for considering the formation of a division on "surface activity". Such a title would embrace a far wider field of technological and academic considerations than surface active substances.

Such a division would in my view embrace in general such aspects as were included in the 2nd International Congress on Surface Activity held in London in 1957.

The Divisions and Commissions of the International Union do not function primarily to promote research, this activity is only indirect, but it does help to serve to establish such things as nomenclature, testing, methods, standardization and the like on an international basis. I could mention just three out of many topics on which such action is needed.

(1) *Foam*. Several methods have been proposed for testing, and several names have been proposed for standard definitions of foam "life", foam "stability", foam "rigidity", and several names have been proposed for "units" of the above properties measured in CGS or other units.

(2) *Specific areas of solids*. Several methods are in common use for measurements as well as more than one definition, e.g. accessible s.p. surface. The technical methods fall broadly into two classes:

(a) gaseous adsorption;

(b) adsorption from liquids.

Under (a) at least three different methods are in use. Probably the most common in industrial circles is the BET method, but even in this one method there is no uniformity as to temperature or temperatures and what gas,  $N_2$ , He or another, should be employed as an international standard method.

Under (b) adsorption of a long chain material, e.g. a fatty acid, is common but several others, e.g. methylene blue, radio-active ions and the like have been proposed. Which should be adopted?

(3) Books such as ICT or *Tabelles Annuelles* contain data, the assembly of which the International Union in the past has stimulated. No such collected data exist at present in the surface active field apart from the surface tensions of some pure substances and a few binary system.

Surface monolayers on liquids and on solids as well as the surface properties of solids, e.g. coefficient of friction, present a wide field of importance, e.g. surface viscosity, compressibility, free energies, entropies and so on. Problem of nomenclature arise here. The free energies and entropies of adsorption of say water on textiles of colourless and coloured substances on solids, e.g. mordants and dyes, could obviously be included.

If it be granted that a case has been established for such a division it would then be necessary to consider whether such a division would be rendered too broad if one proceeded to the next phase of extension to three dimensions. If this were to be considered, the title of the division would have to be changed to "Division on Surface Activity and Colloids" or its equivalent.

I was considering such extensions in the light of finding place for such operations as swelling and dispersion, coagulation and flocculation, and the physico-chemical properties of dispersive phase systems such as aerosols, dusts, emulsions, gels and matter in the fibrous state, and specification of such properties as porosity, liquid repellency or wettability, might be dealt with without extension of the two dimensional concept.

ERIC K. RIDEAL



## Appendix F

In accordance with the Statutes of the Union which provide that proposals may be submitted to the Bureau and to the Council by the member organizations three proposals of the British National Committee for Chemistry are reproduced hereinafter:

### PROPOSALS FOR NEW DIVISIONS IN THE APPLIED CHEMISTRY SECTION OF IUPAC

#### *A. Proposed Division of Surface Activity*

The Divisions and Commissions of the International Union do not function primarily to promote research, this activity is only indirect, but it does help to serve in establishing such things as nomenclature, testing, methods, standardization and the like, on an international basis. Three out of the many topics on which such action is needed in respect of surface activity are:

(1) *Foam*. Several methods have been proposed for testing, and several names suggested for standard definitions of foam "life", foam "stability", foam "rigidity" and also for "units" of the above properties measured in CGS or other units.

(2) *Specific areas of solids*. Several methods are in common use for measurement as well as more than one definition, e.g. accessible s.p. surface. The technical methods fall broadly into two classes:

- (a) gaseous adsorption;
- (b) adsorption from liquids.

Under (a) at least three different methods are in use. Probably the most common in industrial circles is the BET method, but even in this one method there is no uniformity as to temperature or temperatures and what gas, e.g.  $N_2$ , He or another, should be employed as an international standard method.

Under (b) adsorption of a long chain material, e.g. a fatty acid, is common, but several others, for example methylene blue, radioactive ions and the like, have been proposed. Which should be adopted?

(3) Books such as ICT or *Tabelles Annuelles*, contain data, the assembly of which the International Union in the past has stimulated. No such collected data exist at present in the surface active field apart from the surface tensions of some pure substances and a few binary systems.

Surface monolayers on liquids and on solids as well as the surface properties of solids, e.g. of friction, present a wide field of importance, such as surface viscosity, compressibility, free energy, entropies and so on. Problems of nomenclature arise here. The free energies and entropies of adsorption of say water on textiles of colourless and coloured substances on solids, e.g. mordants and dyes could obviously be included.

If it could be granted that a case has been established for such a division it would then be necessary to consider whether such a division would be rendered too broad if one proceeded to the next phase, i.e. extension to three dimensions. If this were to be considered the title of the division would have to be changed to "Division on Surface Activity and Colloids" or its equivalent.

#### *B. Proposed Division of Corrosion*

A Corrosion Division within IUPAC could undertake in the first place to seek international agreement on the following:

- (1) *Definitions of terms used in corrosion research and technology*. There

already exists a German Standard DIN 50900 with a supplement giving translations of terms into English, French and Russian; an Italian Standard on rather similar lines is in preparation; the American Electrochemical Society has definitions in the Corrosion Handbook which it published; the Comité international de Thermodynamique et Cinétique Electrochimiques (CITCE) has also a list in preparation.

A fully representative international body could helpfully seek to bring all these efforts into a common channel.

(2) *Methods of test within certain limited fields* of which are instances stress corrosion, atmospheric corrosion and the examination of some articles important in international trade, such as car trim.

(3) *Expression of results of corrosion tests*. The Corrosion Group Committee also suggest that in addition a corrosion Division might provide a clearing-house for arrangements of major corrosion conferences throughout the world, to avoid wasteful overlapping and to ensure that advance knowledge of preparations was widely disseminated.

### *C. Proposed Division of Industrial Carbon*

The commercial and industrial use of carbon in its many forms has a long history. For much of that time the preparation of carbon and the production of artefacts could properly be described under the heading of "Arts and Crafts". A considerable mystique still surrounds the subject. To those not acquainted with the industry, the term "carbon" or "graphite" has been interpreted too simply. It is a range of substances of widely varying properties over which some, but only limited, control has been exercised by the producer. Lack of recognition of this has vitiated many otherwise excellent research papers in the past.

The importance of carbon in the harnessing of nuclear fission energy has stimulated scientific attention to the subject as never before. Great advances in knowledge and technology have occurred in the last fifteen years; a great deal more has yet to be found out.

Scientists in many countries are now working intensively on carbon and graphite. Many subdivisions of science make their contribution. Organic chemistry provides the starting materials; physical and inorganic chemistry are invoked to study the solid chemistry and physics, the kinetics of reactions and high temperature chemistry. Many of the techniques of physics are used in seeking an understanding of the properties, while applied chemistry predominates in the technology of production, much of which is particular to this industry.

There has therefore been no one branch of science, or society, or journal into which the growing output of research, development and publication would clearly fit. A carbon journal has been started in Japan and there has been talk of new Societies from time to time. The multiplicity of Societies is a matter of common concern and is to be avoided if possible.

In fact, the number of workers and their output would not, in any one country, justify a separate organization. In America some attempt has been made to bring together those interested and an organization is growing around a series of conferences, held biennially, the fourth of which takes place at Buffalo in June. Much valuable work is going on in America and these conferences are open to overseas participation. Correspondents have been appointed in many overseas countries.

This American conference is undoubtedly establishing itself as an important forum for debate and publication. That it does not represent a world forum on carbon was manifest when, in the autumn of 1957, a Conference on Industrial Carbon and Graphite was held in London under the auspices of the Society of Chemical Industry. Although a conference

had been held in Buffalo earlier in the same year, the London meeting produced some 70 papers, most of them dealing with original work, and attracted about 400 people from many countries of Europe and Asia as well as from America.

One noticeable feature was that many of those who attended would be unlikely to visit America.

The basic need in this field of work is for co-ordination of research, international exchange of progress and collective publication. Questions of standardization which form the basis of the work of many divisions of IUPAC have not yet arisen. However, if the above requirements can be met within the framework of the Union it would be, to those concerned, a most valuable activity and one that would ensure a truly international handling of the subject as a whole. Some thought was given to international co-operation at the London meeting, by representatives from England, France, USA and Japan; the urgent need was recognized. The American participants will evidently pursue the matter independently if no other solution is found.

One suggestion for meetings would clearly be that, if there is indeed a need for biennial conferences, that they should be held alternately in America and Europe.

Consideration may also be needed on whether the activity should be a joint one with the International Union of Pure and Applied Physics.



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**INTERNATIONAL UNION OF PURE  
AND APPLIED CHEMISTRY**

**INFORMATION BULLETIN  
NUMBER 9**

**SECRETARY GENERAL:**  
**Dr. Rudolf Morf, Basle, Switzerland**

**Butterworths Scientific Publications • London**  
**September 1959**



## INTRODUCTION

The Secretary General is delighted to bid you all a hearty welcome in Munich and wishes you an efficient meeting and also a good time in Bavaria.

It will be a great pleasure for the Secretary General to be at your disposal in the Union's headquarters in the Technische Hochschule or, if you so wish, in the "Bayerischer Hof", Promenadeplatz, Munich, where he shall stay from 23 August to 6 September, 1959.

## PREAMBLE

The aim for establishing a first draft of Information Bulletin No. 9 is manifold.

As usual, this Bulletin should inform all Titular Members about IUPAC activities. In addition to this main purpose, issue No. 9 should be a useful guide to the XXth Conference and the XVIIth Congress.

In order to facilitate this dual purpose, it is envisaged to edit Bulletin No. 9 in 2 issues. The first issue should be ready for distribution a few days before the opening of the Conference and should give Titular Members, National Delegates and Bureau members some comments and additional details which will enable the participants to get a clear idea about the problems to be dealt with during the Conference.

The second issue of the Information Bulletin should contain the first results and tentative proceedings of the XXth Conference and should be available right at the beginning of the Congress.

Proper information of all who might be concerned, however, can only be realised if Section Presidents and Secretaries will be good enough to draft programmes and proceedings of the Conference.

The Secretary General hopes for the full understanding of this proposal that no effort should be spared in order to make a Conference attractive, interesting and efficient. This can best be achieved by properly informing all members attending the Conference and that is the reason why the Secretary General proposes to create a special issue of the information Bulletin No. 9.



## A HISTORICAL SURVEY

The activity and the prestige of the "International Association of Chemical Societies"—this was the title of the predecessor of IUPAC—have culminated under the leadership of Sir WILLIAM RAMSAY as its President.

In a careful study of the most eminent problems which are facing IUPAC to-day, it is worth its while to read again the minutes of our predecessors and specially those minutes drafted before World War I. Their courageous decisions could be the red-line for our own resolutions.

Among others we read in the minutes of the third Brussel-meeting (19 to 23 September 1913):

"President, Sir WILLIAM RAMSAY, opened the session explaining that Brussels had been chosen as the place of meeting instead of London for two reasons: first, in acknowledgement of Monsieur SOLVAY's munificent bequest and, secondly, as the date coincided with the celebrations taking place at Brussels in honour of Mr. SOLVAY."

and another paragraph  
"Résolution 1. Le Bureau de l'Association est chargé de signaler aux rédactions de tous les périodiques publiant des mémoires de chimie la grande utilité que présenterait l'unification des abréviations, et de les inviter à s'engager à adopter dans ce but, et pour les mémoires de chimie seulement, les abréviations internationales dont il sera parlé ci-après..."

A letter datet 5 May 1913 is of striking actuality now. The author, WILLIAM ALBERT NOYES, father of our future President, writes as follows:

"When in Berlin I talked with Dr. HESSE of the Chemisches Zentralblatt with regard to the possibility of cooperation, it appeared to both of us that the difference in language, as well as the somewhat different scope of the Zentralblatt and of Chemical Abstracts, rendered extensive cooperation in the preparation of abstracts by the Journal of the Chemical and the American Chemical Society impossible. There is an understanding between the two journals that either may use abstracts prepared by the other in cases where this seems desirable, but the large bulk of abstracting by each Journal is done independently, and I think that this must continue to be the case" ... and later on:

"I am not without hope that some basis of cooperation may be found in the future, while I do not at present see any basis for general cooperation on the part of the Chemical Societies of the world, other than that which might result in the publication of a single Abstract Journal for each language."

signed: W. A. NOYES

A very important proposal—of high actuality also—moved by the Swiss representative, ALFRED WERNER, Nobel-prize winner of Zurich, was approved unanimously in 1913 by the Council of the International Association of Chemical Societies. ALFRED WERNER, entrusted with a study for establishing an unique international language for the use in Chemistry came to the conclusion that such an attempt must lead to impoverishing the art of expression. But WERNER moved the proposal of creating a "Journal of the International Association of Chemical Societies" and he urged to disseminate 2000 copies of the Comptes Rendus. Forty years later, in 1953, only 700 copies of the IUPAC-Comptes-Rendus had been printed.

Of course the third meeting of the International Association had also to deal with financial matters. However the resolution taken in 1913 is hardly tranferable to the present time because even the best currency existing could not be compared with the Belgian gold franc of 1913 regarding its purchasing power.

"In response to an invitation from President Sir WILLIAM RAMSAY, Mr. HALLER gave an account of the negotiations which had resulted in the offer by Mr. SOLVAY to make an unconditional gift of 250.000 gold francs to the International Association. Further, Mr. SOLVAY proposed to found an International Institute of Chemistry to be governed by an "Administrative Commission" of three Belgian members and by the International Association of Chemical Societies. The Institute would have an income of 55.000-56.000 gold francs, the interest on Frs. 1.000.000, which was to be distributed in such a manner that, for a period of 28 years, two-thirds of this sum should be placed at the disposal of the International Association of Chemical Societies, whilst the remaining one-third was to be employed in establishing scholarships for Belgian students.

The President moved the following resolution, which was carried with acclamation: That the best thanks of the Council of the International Association of Chemical Societies be given to Mr. ERNEST SOLVAY for his munificent gift of 250.000 gold francs; for the funds which he has also placed at the disposal of the International Association of Chemical Societies, viz. 37.500 gold francs a year, and for the site which he has given for the offices of the International Association."

The idea of making this short historical excursion was initiated by Professor EGON WIBERG, Chairman of the Munich Organizing Committee, who had asked me to go through the archives of IUPAC in order to find a few data which might be suitable for the XXth Conference and the XVIIth Congress. In the archives of the first International Association I have found that two eminent German Chemists, P. JACOBSON and WILHELM OSTWALD, were the first to take the initiative for creating an International Association. This body developed its greatest activity and efficiency under a clear British supremacy with Sir WILLIAM RAMSAY, President, A. WILLIAM CROSSLEY, Secretary General, and PERCY FARADAY FRANKLAND, Vice-President.

## I. FINANCIAL MATTERS

As decided in Moscow, a Finance Committee is to be appointed. The following members have been nominated so far:

Mr. JEAN GIVAUDON	France
Prof. A. TISELIUS	Sweden
Prof. T. URBANSKI	Poland
Dr. O. HORN	Germany
Prof. M. LORA-TAMAYO	Spain
Prof. S. VEIBEL	Denmark
Prof. H. NOWOTNY	Austria
??	Norway

The terms of reference will be: to look into the IUPAC finances, to study the financial situation and to make proposals how to increase the income of the Union.

Moreover 4 letters give some further explanations regarding the problems which have to be dealt with by the Committee and of course by the Bureau and Council during their meetings:

Prof. ARTHUR STOLL  
President

Basle 13/Switzerland  
c/o Sandoz S.A.  
January 14, 1959

to

Dr. C. F. RASSWEILER  
22 E, 40th Street  
New York 16

Dr. R. HOLROYD,  
Imperial Chemical Industries,  
Milbank,  
London, S.W.1

Professor DOMENICA MAROTTA,  
Segretario Generale della Società Chimica  
Italiana,  
Viale Liegi 48  
Roma

Professor KARL WINNACKER,  
Vorsitzender des Vorstandes der  
Hoechst Farbwerke  
Frankfurt (M)-Hoechst

Gentlemen:

Besides many other problems which occupy the attention of the International Union of Pure and Applied Chemistry, there are two main topics which were once again discussed at the last meeting of the Executive Committee held in Washington, D.C., and Rochester, N.Y., from 8 to 12 October, 1958.

The International Union of Pure and Applied Chemistry still suffers from the unfortunate fact that both the Union and its activity are not sufficiently well-known to chemists throughout the world. As a result, many chemists know too little of the work carried out by the Union, its Sections and its Commissions. This work is of great significance, indeed it is indispensable to the developments of chemistry on an international level. For example, the Union has published papers on atomic weights, nomenclature, chemical and physical constants, definitions, etc.

The other important problem concerning the Union is that of adequate financial resources. The intensive and widespread activity within the Union, as carried out in the Commissions and the International Conferences and Symposia throughout the year, necessitates more and more funds. It is therefore the duty and responsibility of the Executive Committee to discover new sources of money, as in the next few years the Union will have a great financial deficit and the reserves present today will soon be exhausted.

On the other hand, various persons have expressed their desire for association with the Union. We have therefore considered how it would be possible to incorporate individuals or private organizations in the Union, not as voting members in the Council, but as a sort of "Associates"\*, since Article 3 of Chapter I of the Statutes defines the possibility of membership of the Union as follows:

"(3) A country may join the Union through its national chemical council, its national federation, its national society representing chemistry, or

\* «Associate» in this letter has no relation to *Associate Members*



failing these, through its national academy of science or, provisionally, if such organizations do not yet exist, through its government."

Incorporating such "Associates" in the Union would have the great advantage that interest could be aroused and stimulated in wide circles and that it would be possible to make further funds available to the Union from the contributions made by the "Associates". In return, the "Associates" would be regularly informed of the most important publications and decisions of the Union and would be invited to the Congresses, Conferences, Symposia, etc. organized by the Union. Although it would not be possible to allow the "Associates" to vote, suggestions from them could be accepted.

In its last Meeting, held from 8 to 12 October, the Executive Committee discussed the problem of possible affiliation of private corporations, societies and institutions with IUPAC. The views of the Executive Committee were formulated as follows:

"Considering the wishes often expressed by representatives of private corporations, learned societies, research institutions and associations to become affiliated or associated with IUPAC, and considering that the aims of IUPAC should receive wider publicity, it is

*Resolved:* To appoint a special committee with the possible membership of Dr. C. F. RASSWEILER (USA) as Chairman; Dr. R. HOLROYD (GB), Prof. DOMENICA MAROTTA (Italy) and Prof. KARL WINNACKER (Germany) with terms of reference to consider whether it will be possible to appoint 'associates' to the Union; to define their obligations as well as their rights; and to find a suitable category for this type of sponsorship of the Union. The President to act."

I would now like to ask you whether you would be prepared to work on such a "Special Committee" and whether you believe, in principle, that an expansion of IUPAC in the way described above would be in the interests of the Union. If you do so believe, it would be necessary to establish the rights of the "Associates" as well as their obligations, e.g. minimum contribution for individuals and legally constituted corporations. However, the Executive Committee does not wish to anticipate the "Special Committee". The members of the Executive Committee have contemplated graduated annual contributions for individuals on the one hand and for small and large industrial undertakings on the other. If it is believed that such a "Special Committee" and its work are in the interest of the Union, one of the first tasks of the "Special Committee" to be formed will be to work out an appropriate ruling.

As the Executive Committee will meet again in the second half of March, I would be very grateful if you could give your views, in principle, on the suggestion of the Executive Committee by this date. If at all possible, the problem should be solved in the near future so that a report or proposal can be submitted at the XXth Conference of IUPAC which will be held at the end of August in Munich.

On behalf of my colleagues on the Executive Committee of IUPAC, I would appreciate receiving your views as an authority and would like to express, in anticipation, heartfelt gratitude for the trouble you will take.

With kind regards,

Yours sincerely Prof. A. STOLL

R. HOLROYD  
Imperial Chemical Industries Ltd.  
London

13th February, 1959

Dear Professor STOLL

I fear that this is not a very prompt reply to your letter of January 14th but I have felt that the matter it raises is of such importance as to require a very careful examination of a number of factors.

I would like to say at once that I have, personally, a very high regard for the activities of IUPAC and that I appreciate the urgent need both to obtain greater financial support and also to evoke a greater interest amongst industrial concerns, research institutions, etc. in the activities of IUPAC. At the same time I find myself very much in agreement with Professor WINNACKER in that (a) very little financial support will be forthcoming from private persons, research institutions and small industrial organisations; it will have to come mainly from large industrial concerns, and (b) such large concerns would be far better approached by the individual countries concerned than by IUPAC directly.

I do not, however, go all the way with Professor WINNACKER on his further proposal that individual countries should, according to the size of the chemical industries, be given a quota to be raised by industrial contributions. I think that more effective and quicker results would be obtained if, at least in the first place, individual countries were simply asked to exercise their best efforts to obtain industrial support.

Similarly, I do not think it advisable at this early stage to lay down graded minimum subscriptions from industrial supporters. It might help, however, if subscriptions above a certain amount carried with them privileges of associate membership of the Union such as free issue of literature and possible remission of registration fees for conferences, etc. for a number of employees, this number being geared to the subscription. This would help to encourage an interest in the activities of the Union other than the purely financial one.

As far as my personal position is concerned, while I am very honoured by your invitation to be a member of a "special committee" to examine these proposals. I am forced to the conclusion that I am so much committed in the foreseeable future that I could not be an effective member of a committee charged with the responsibility of working out an international scheme. This is bound to be a fairly complicated job and one requiring a considerable amount of time and attention. On the other hand, should there be a general measure of agreement with the views expressed by Professor WINNACKER and now by myself. I would be very happy indeed to do anything I could in connection with obtaining industrial support in the U.K. on a national basis.

Yours sincerely,

(sgd.) R. HOLROYD

cc. Prof. C. F. RASSWEILER  
Prof. DOMENICA MAROTTA  
Prof. KARL WINNACKER

Frankfurt/Hoechst, den 2. Februar 1959

Sehr geehrter Herr Professor STOLL,

Mit verbindlichstem Dank bestätige ich Ihr Schreiben vom 14. Januar ds. Js., in dem Sie mich über den Beschluss des Exekutiv-Komitees unterrichten, ein "special committee" zu ernennen, dem auch ich angehören soll.

Wie aus Ihrem Schreiben hervorgeht, war der Ausgangspunkt der Überlegungen des Exekutiv-Komitees, einen Weg zu finden, der IUPAC die für ihre Arbeiten notwendigen zusätzlichen Geldmittel zur Verfügung zu stellen und auf der anderen Seite möglichst viele an der Chemie interessierte Stellen eines Landes mit den Arbeiten und Zielen der IUPAC vertraut zu machen. Dieses Ziel soll dadurch erreicht werden, dass ausser den offiziellen Mitgliedern der Union nun zukünftig auch Unternehmungen der chemischen Industrie, Wissenschaftlichen Gesellschaften, Forschungsinstituten und Privatpersonen Gelegenheit gegeben werden soll, assoziierte Mitglieder der IUPAC zu werden. Diese assoziierten Mitglieder müssten sich verpflichten, jährlich einen Beitrag zu zahlen, und würden dafür laufend die Arbeiten, die von der IUPAC, ihren Sektionen und Kommissionen durchgeführt werden, zur Verfügung gestellt erhalten.

So begrüssenswert das Ziel ist, das sich die IUPAC gesetzt hat, müsste man sich meines Erachtens noch einmal den Weg überlegen, wie dieses Ziel mit grösstmöglicher Aussicht auf Erfolg ohne allzu umständlichen und zeitraubenden Schriftverkehr seitens der IUPAC erreicht werden kann.

Nach meiner Erfahrung wird die Aussicht nicht sehr gross sein, zumindest was den finanziellen Teil anbetrifft, von Privatpersonen, Wissenschaftlichen Gesellschaften oder Forschungsinstituten irgendwie ins Gewicht fallende Beiträge zu erhalten. Die Institute und Verbände sind mit wenigen Ausnahmen selbst auf Beiträge und Spenden angewiesen und werden einer zusätzlichen finanziellen Verpflichtung wahrscheinlich mit grosser Zurückhaltung begegnen. Es ist die Gefahr nicht ausgeschlossen, dass die ganze Aktion, die meines Erachtens auf internationaler Basis kaum durchführbar ist, zu einem Fehlschlag wird und dem Ansehen der Union schaden könnte.

Ich könnte mir vorstellen, dass in der Form der Durchführung ein einfacher und mehr Erfolg versprechender Weg gefunden werden kann. Es erscheint mir z.B. möglich, dass die grossen Nationen sich verpflichten, neben ihren bisherigen Beiträgen einen freiwilligen zusätzlichen Betrag zu zahlen. Da die Länder mit einer grossen chemischen Industrie und entsprechender chemischer Forschung mehr an der Arbeit der IUPAC interessiert sind und auch in grösserem Umfang von ihr profitieren, sollten auch die zusätzlichen Zahlungen in einem sinnvollen Zusammenhang mit der Leistungsfähigkeit der chemischen Industrie des betreffenden Landes stehen. Länder mit einer hoch entwickelten chemischen Industrie haben es auch bedeutend leichter, einen zusätzlichen Betrag aufzubringen, da sie sich an einen grösseren Kreis von Chemie-Unternehmungen, die fast ausschliesslich als Geldgeber in Frage kommen, wenden können. Man müsste also einen Schlüssel finden, wie man die zusätzlich pro Jahr benötigten Beträge gerecht verteilt. Die Richtzahl hierfür könnte z.B. der Wert der jeweiligen Chemieproduktion sein.

Nach der Umsatzstatistik, die für 1956 recht vollständig ist, beträgt die Chemieproduktion der Welt 59 Milliarden US-\$. Berücksichtigt man nur die 11 grössten Chemieproduzenten mit einem Umsatz von 49,6 Milliarden US-\$ und setzt diesen Wert = 100, so kommt man zu folgenden Verhältniszahlen:



Land	USA	Umsatz	24,2 Milliarden \$	ca. 49%
	UdSSR		7,6 Milliarden \$	15%
	Grossbritannien		5,2 Milliarden \$	13%
	Westdeutschland		3,7 Milliarden \$	8%
	Japan		2,5 Milliarden \$	5%
	Frankreich		2,6 Milliarden \$	5%
	Italien		2,0 Milliarden \$	4%
	Niederlande		0,6 Milliarden \$	1%
	Belgien/Luxemburg		0,5 Milliarden \$	1%
	Schweden		0,4 Milliarden \$	1%
	Schweiz		0,3 Milliarden \$	1%

Unterstellt man, dass die zusätzlich benötigten Mittel der IUPAC sich in einer Grössenordnung von jährlich etwa US-\$ 50000.— bewegen, so glaube ich, dass die Aufbringung dieser Mittel nach dem obigen Schlüssel, der gegebenenfalls noch etwas abgeändert werden kann, zumutbar und durchführbar erscheint.

Die Aufbringung dieses Geldes sollten die einzelnen Nationen intern regeln. Dies könnte in der Form geschehen, dass die betreffenden Länder an eine Reihe von Firmen herantreten, deren Zahl aber auch nicht zu gross gehalten werden sollte, und sie bitten, diese Summe auf ein besonderes Konto einzuzahlen. Es wäre meines Erachtens nicht ratsam, wenn die IUPAC selbst an die Firmen herantritt, da es erfahrungsgemäss erfolgversprechender ist, wenn dies durch eine mit den Verhältnissen des Landes vertraute repräsentative Persönlichkeit des wissenschaftlichen oder industriellen Chemie-Lebens geschieht.

Das Land würde dann die Gesamtsumme der IUPAC überweisen und eine Liste der Firmen aufstellen, auf Grund der dann die Union die für diesen Zweck vorgesehenen Mitteilungen usw. versendet. Diese Liste könnte gegebenenfalls auch noch zusätzlich einige Forschungsinstitute und Verbände enthalten, um zu erreichen, auch diese mit den Arbeiten und den Zielen der IUPAC vertraut zu machen, ohne dass sie selber Beiträge leisten müssen.

Ich glaube, dass dieser Weg verhältnismässig schnell zu verwirklichen wäre, und dass durch ihn auch ein Bekanntwerden der Union in grösserem Kreis gefördert wird.

Durchschlag dieses Schreibens habe ich den übrigen vorgesehenen Mitgliedern des "special committee" zugesandt.

Mit verbindlichsten Empfehlungen bin ich Ihr sehr ergebener

(gez.) Prof. K. WINNACKER

March 12, 1959

Dear Professor STOLL,

I must start by apologizing for having delayed so long in giving you either a positive or a negative answer to your letter regarding expanding the membership of IUPAC to include individual and corporate associates. I personally have had very little association with the activities of this organisation and I hesitated to reply to your questions until I had had a chance to discuss the matter with various people who might be better informed.

There is considerable question in my mind as to how much money could be raised in the United States by soliciting associates who would pay annual dues. There are a certain number of industrial people who take an active interest in IUPAC, but it would appear that this number is quite small. Judging particularly by the recent list of those from the United States planning to attend the summer meeting it would appear that the interest is primarily among university or research institute people. Outside of Dr. VOLWILER and Dr. SPARKS, I have not found any great interest in the activities of IUPAC among the chemists occupying executive positions in the industrial field. Industrial chemists seem to have more interest in the more specific international activities such as those in the petroleum and plastics fields. This situation places a considerable limitation on the amount of corporate dues which might be collected in this country, especially if really appreciable sums were to be charged to corporate associates. I think it would take quite a promotional campaign to raise any major amount of money on this basis.

There has been an active solicitation of funds in this country for IUPAC activities and I believe a very considerable group of people have been making voluntary contributions of \$ 10 a year as a result of this campaign. These contributions, I think, have been motivated primarily by individual friendships with the people making the requests and by the fact that they come from our National Academy of Science. It is possible that the number might be increased if there were some services rendered in return for the subscription; but, on the other hand, I imagine many of those who now contribute \$ 10 would not be interested in any material they might receive.

It may be that there are more opportunities for raising money here than I myself anticipate and certainly I can see no objection to making associate memberships available as long as this does not involve IUPAC assuming any major financial expenditures.

I do not feel that I myself have been close enough to IUPAC activities to be a logical person to serve on a committee which might undertake the actual development of associate memberships in this country. My suggestion would be that either Dr. VOLWILER or Dr. SPARKS would be much more logical members of your proposed committee and both would be in a better position than I to attempt to publicize the importance of your organisation's activities to the people in this country.

While I appreciate your asking me to serve on this committee, I feel that I must decline the honour. I am sorry that I have delayed so long in doing so and I hope that my delay will not seriously inconvenience you.

Sincerely yours,

signed C. F. RASSWEILER

## **II. RELATIONS WITH THE INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS—ICSU**

ICSU has convened a meeting of its Executive Committee in the Hague from 30 September to 3 October, 1959, where Sir CHARLES DODDS and the Secretary General will represent IUPAC. It has also been necessary that IUPAC makes claims for subventions from ICSU for 1961 and 1962.

A very detailed report regarding the Committee on Space Research (COSPAR) was received. Full details may be obtained from the Secretary General.

## **III. RELATIONS WITH MEMBER COUNTRIES**

### **Australia**

Please note change of address of the

Australian Academy of Science  
Gordon Street  
Canberra City ACT

An intermediate report has been received from Dr. A. L. G. REES, Convener of the Symposium on Natural Products, showing the progresses made in the organization of that Symposium. Some 2000 copies of the preliminary programme have been dispatched. Additional copies may be obtained either from Dr. A. L. G. REES or from the Secretary General in Basle.

### **Israel**

Please note change of address of the

Israel Chemical Society  
30 Jehuda Halevi Street  
Tel Aviv

Attention is drawn to the applications for membership of Argentine, Bulgaria and the Chinese Republic (Taiwan). See agenda of the XXth Conference, item 6.

## IV. ACTIVITIES OF THE UNION THROUGH THE SECTIONS AND COMMISSIONS

### Physical Chemistry Section

The Manual of Physico-Chemical Symbols and Terminology, prepared from the publications of the Commission by its President, Prof. J. A. CHRISTIANSEN, has been recently issued and can be obtained either from the Secretary General or from the official publisher: Butterworths Scientific Publications Ltd. in London.

### Applied Chemistry Section

It has to be mentioned that meanwhile Prof. R. TRUHAUT, President of the Division on Toxicology and Industrial Hygiene, has made comprehensive proceedings of the Symposium held in Prague. These proceedings will be published in due course.

We have also received a Report of the

### Crop Protection Division

#### *Committee Membership*

Dr. H. L. HALLER, Chairman  
Prof. H. BRAUN  
Dr. Z. ECKSTEIN  
Prof. H. OSVALD  
Mr. G. G. TAYLOR  
Dr. J. TREBOUX  
Mr. G. VIEL  
Dr. R. A. E. GALLEY, Secretary

(1) The last meeting of the Committee was held during the 4th International Crop Protection Congress held in Hamburg in September, 1957.

(1a) At that meeting the time and place of the next International Crop Protection Congress were discussed and it was decided that 1961 would be convenient bearing in mind other international meetings and that if possible it should be held in the USA.

(1b) It was also agreed that further consideration should be given to holding a further meeting in the tropics so that special attention could be given to tropical problems.

(1c) A recommendation that the postponed symposium on residues should be held at the meeting in Munich in 1959 was endorsed.

(1d) A recommendation was also made that by the Division should be renamed the Pesticides Division as so many of the chemicals concerned were used in fields far beyond agriculture.

(1e) The multiplicity of international organizations covering subjects related to the control of pests was noted.

(2) The recommendation concerning Symposium on residues has been accepted and at the XVIIth International Congress of the International Union of Pure and Applied Chemistry to be held in Munich a symposium on "Food Additives and Residues of Pesticides in Foods (Toxicology and Analysis)" will be held 3-5 September, 1959.

(3) New appointments to the Committee have been made so that a staggered retirement rota is now practicable.



## Symposium on Radioactivation Analysis

As already mentioned in Bulletin No. 8, this Symposium was held in Vienna and has been a great success. A short press release is given hereafter:

### *Radioactivation as an Analytical Tool Scientists from 21 countries start discussions in Vienna*

Vienna, 1 June 1959—Fifty-nine scientists from 21 countries met for a three-day symposium in Vienna this morning to discuss the techniques and results of radioactivation analysis, a method of analyzing the constituents of a small sample of matter by making the sample artificially radioactive. The symposium, which has been organized jointly by the International Atomic Energy Agency (IAEA) and the Joint Commission on Applied Radioactivity of the International Council of Scientific Unions (ICSU), was opened by Mr. STERLING COLE, Director General of IAEA.

Mr. COLE said he was happy to see that scientists from more than 20 countries had assembled at this symposium to exchange views, put forward new ideas and pool the latest scientific information on a particular phase of the peaceful applications of atomic energy, because "this gathering together of the latest information, consolidating it in a useful form and then distributing it throughout the world" was one of the first and most important functions of the Agency. He recalled that one of the ideas advanced with special emphasis at the Geneva Conferences on the peaceful uses of atomic energy was that more frequent meetings should be held to discuss specific aspects of these uses.

Dr. HENRY SELIGMAN, Deputy Director General of IAEA, addressed the gathering in his capacity as President of the Joint Commission on Applied Radioactivity, co-sponsor of the symposium. He said that the subject to be discussed at the symposium had many interesting aspects and its proceedings would be published as soon as possible and widely distributed. Referring to the varied uses of radioactivation analysis, he mentioned that this method had been found useful even in certain fields of criminal investigation, for example in the investigation of suspected arsenic poisoning.

Prof. JERZY MINCZEWSKI, Professor of Analytical Chemistry at the Technical University of Warsaw and Chief of the Department of Analytical Chemistry of the Institute of Nuclear Research, Warsaw, presided over today's session, at which the discussion was based on two introductory papers presented by Dr. G. B. COOK, of the Harwell Research Establishment, UK, and Dr. W. HERR, of the Max-Planck Institute, Mainz, Germany.

Dr. COOK set forth the general considerations of radioactivation analysis in reactors and pointed out that the sensitivity of this technique depended on the fact that a readily determinable amount of radioisotopes could be induced in a microgramme or less of many elements by irradiating the sample with neutrons. He described the methods used to overcome uncertainties as well as the possible lines of subsequent analysis.

Dr. HERR pointed out that radioactivation analysis had become a powerful tool in tackling fundamental problems in geo-chemistry and cosmo-chemistry, and gave a review of the recent work in this field. One of the main advantages of this method, he said, was that it could often supply information simultaneously about the quantity and isotopic composition of elements which existed in minute traces in a sample. It was, for example, useful in determining the geological age of minerals and meteorites, and in certain branches of the study of cosmic radiation.

Experts from several countries took part in the discussions on these two papers.

The participants in the symposium are from Argentina, Austria, Belgium, Bulgaria, Czechoslovakia, Denmark, Finland, France, Federal Republic of Germany, Hungary, Israel, Italy, the Netherlands, Norway, Poland, Sweden, Switzerland, the United Arab Republic, the UK, the USA and Yugoslavia.

### Publication Committee

The Publication Committee has convened a meeting in London on 26 June, 1959, from which the following excerpts of the Minutes are given by its Secretary, Dr. R. S. CAHN. These propositions and resolutions are self explanatory:

#### Excerpts from the minutes of the third meeting

Held at the Chemical Society, Burlington House, London, W.1,  
on 26 June, 1959, at 10 a.m.—1 p.m.

*Abstracting and Documentation.* The Committee agreed that it would be grateful if it could be advised of any developments in IUPAC concerning these subjects, that it would be glad to provide any information required within its sphere of knowledge, and that it believed it should be able to advise on technical problems in these fields, but that it was not suitably constituted to give advice on the political, economic or scientific principles which might be involved. The Committee advised that the utmost care be exercised by IUPAC before initiation of investigations or committee work on the general aspects of abstracting and documentation, both with respect to advice to be rendered to those already engaged in these fields and with respect to work to be undertaken by the Union itself.

*Present state of IUPAC Publications.* Butterworths have already published:

“Kekulé Symposium”

“Nomenclature Report on Organic Chemistry”

“Nomenclature Report on Inorganic Chemistry”

and the Commission reports:

“Vitamin D Bioassay of Oils and Concentrates”

“Education and Training in the Paint Industry”

“Determination of Copper Content of Foodstuffs”

“Vitamin A Potency of Beta-Carotene”

“Assay of Vitamin A Oils”

It was expected that the following would be issued before the Munich meeting:

“Manual of Physico-chemical Symbols”

“Determination of Toxic Substances in Air”

The following should appear shortly after the Munich meeting:

“Classifications of High Polymers: a Critical Review”

The sales and distribution of the nomenclature reports have already been greater than was expected.

Arrangements have been made to publish the Australian Symposium on Natural Products 1960.

The Chairman and Secretary reported that during the past year arrangements with Butterworths had worked excellently, and that the publishers had at all times been most co-operative.

*Future Publications.* (a) The Chairman reported that enquiries had been received from several Commissions and Divisions regarding future reports and that decisions were required immediately concerning material shortly expected from the Analytical Section (President Dr. R. BELCHER) as follows:

(1) "Spectrophotometric Data of Organo-metallic Complexes and of Metallic Compounds in Organic Solvents." About 300 pages, 300 diagrams. English and French (DUYCKAERTS)

(2) "Analytical Reactions for Inorganic Materials" (WEST)

(3) "Dissociation Constants of Acids and Bases" (KORTÜM). About 150 pages

It was *agreed* that the preceding three items should be published by IUPAC after any necessary consultation between the Analytical Section and the Physical Chemistry Section of IUPAC.

(4) Reports on the terminology of weighing, units of mass, volume, electro-chemical analysis, wavelengths, gas chromatography.

(5) Recommendations for standard compounds to be used in testing organic micro-analytical methods, for standardization of pH, a glossary of sampling terms.

It was *agreed* that certain aspects in items (4) and (5) would require consultation between the Analytical Section and other Sections or Commissions of IUPAC, that such consultations should be arranged by agreement between Dr. THOMPSON and Dr. BELCHER and that, subject to such satisfactory agreements, these items should also be published by IUPAC.

(b) A commercial agreement had been reached between Butterworths and Verlag Chemie for joint publication of material which would emanate from the IUPAC Congress to be held at Munich in September, 1959.

(c) At the request of Dr. MORF it was *agreed* that the IUPAC Information Bulletin might be printed in Switzerland, with editing by Butterworths, because this ensured much more rapid publication.

(d) At the request of Dr. MORF it was *agreed* that the Comptes rendus might be printed in Switzerland, with editing by Butterworths, because the proofs had to be read by some sixteen different people and this could be arranged more easily by Dr. MORF from Switzerland.

*Symposia.* The Committee discussed at length the following notice concerning Symposia which had been drafted by Dr. THOMPSON as a basis for discussion by the Executive Committee at Munich (see Information Bulletin No. 8, page 22, section 7).

The Committee considered in this connection also the following points which had been made during discussions between various persons—

(I) It is proper that IUPAC should have the right to publication of meetings organized by its Commissions and Divisions which have been financed by IUPAC.

(II) It is not desirable that the proceedings of all symposia should be published and some discretion would be necessary to ensure a high quality of material.

(III) The sponsorship of the Union should not be given too freely and, indeed, it may be desirable that IUPAC should itself organize more international meetings directly and confine its sponsorship to these. On the other hand, it might be unwise in the best interest of the Union's prestige to refuse moral sponsorship for other high quality symposia.

(IV) It is unreasonable for the Union to claim publication rights for symposia which have been organized essentially by some national society.

(V) The rights of the publisher must be observed. Symposia publication costs the Union nothing, but Butterworths should not be expected to publish poor quality material while other publishers are allowed to publish the better symposia.



(VI) It is understood that commercial publishers have recently offered financial help to certain meetings. This practice may have some unfortunate consequences and if it became common could only complicate the execution of a general IUPAC policy.

The Committee *agreed* that, subject to two important modifications, the principles drafted by Dr. THOMPSON for consideration by the Executive Committee (see above) represented a general policy which was desirable and could be in practice enforced.

The two modifications which were *agreed* were:

(i) All cases which appeared, either to those organizing meetings or to members of the Executive Committee or of the Publication Committee of IUPAC, possibly to fall outside the scope of the above general provisions should be discussed by the Executive Committee and the Publication Committee before a decision was taken. This would apply both to cases where publication otherwise than through the IUPAC publisher was requested and to cases where publication by the Union was requested but appeared undesirable.

(ii) A regular principle should be established that reports of symposia, conferences, etc., taking place outside the British Commonwealth should be published jointly by the Union's publishers and by a publisher (commercial publisher or journal) in the country where the meeting or conference was held, on those occasions when the appropriate national authority so desired. This, however, should not override the ability of the Union to refuse publication by itself should it so wish.

*Symposia continued.* Towards the end of the Committee meeting Representatives of Messrs. Butterworths attended by invitation. They agreed that Butterworths would be willing to accept the regular principle that reports of symposia and conferences, etc., should, in future, be published jointly by them and by national publishers outside the British Commonwealth if the Union should so desire.

*Suggestion of an IUPAC Journal.* The Committee considered a proposal that the Union should issue a Journal in place of its present separate publications, and various details concerning contents and conditions of sale were discussed. The Committee *agreed* to recommend this proposal in principle and instructed Drs. THOMPSON and CAHN to prepare a detailed plan for submission to the Executive Committee at Munich.

It was considered that the following advantages would accrue:

(1) It is a proper activity of the Union to issue a journal, and that would add notably to its international prestige and recognition.

(2) The journal would probably be taken by many libraries and laboratories, so that the Union's activities would get much wider display. Readers would see the varied activities apart from the special reports in which they are primarily interested.

(3) All publishers have fully worked out methods of advertising and distributing journals, so that the sale of an IUPAC journal would be much simpler and more effective than that of individual publications, and therefore wider.

(4) Even if the size of individual issues varied, the resulting set of issues would be a more presentable set of publications than the present set, which includes already numerous small pamphlets.

(5) Owing to the greater sale expected, the price should be less than at present for a given number of pages.

(6) At present it is necessary to negotiate the price of each separate publication with the publishers. This would be avoided, both for the original publication in the journal and for reprints, by agreeing in advance the price for a given number of pages.



(7) The Union has not yet solved its problem of publishing tentative nomenclature rules. The journal would solve that problem, for the tentative rules could be published in it. They would then obtain wide circulation before being made definite. The absence of such wide circulation of the tentative rules is one of the major criticisms sometimes levelled against the work of the Union's nomenclature committees.

(8) The difficulties with regard to Symposia would probably disappear. Indeed, as the journal acquired a reputation, more requests might be received to publish in it some of the symposia which are now published elsewhere.

#### **Fourth Meeting**

To be held at Munich (on Friday, 28 August, 1959, at 9.30 a.m.)

##### *Provisional Agenda*

- (1) Minutes
- (2) Apologies for absence
- (3) Progress report, including the Symposium to be held by the Clinical Chemistry Commission at Edinburgh in August, 1960
- (4) To receive decisions of the Executive and Council
- (5) (i) If the suggestion for a Journal is accepted, the following will require consideration:
  - (a) New contract with IUPAC printers
  - (b) Appointment of Editor
  - (c) Shall there be an Editorial Board, *e.g.* the Publication Committee plus one eminent chemist each from US, USSR, France, Germany, Great Britain?
  - (d) Suggestion on detail of the Journal from the Committee
- (ii) If there is not to be a Journal, the following will require consideration:
  - (e) Renewal of present contract with Butterworths
  - (iii) In any case the following will require consideration:
    - (f) Public statement regarding symposia
    - (g) Comptes Rendus and Information Bulletin
- (6) *Analytica Chimica Acta*: Attached is a photocopy of the current title page. The reference to IUPAC date back to Volume 3, 1949, and now requires to be removed
- (7) Any other business
- (8) Date of next meeting

All these questions will be dealt with at the Bureau and Council meetings under item 13 of the Agenda.

#### **Abstracting and Documentation**

The problems regarding abstracting and documentation have been treated already by the Publication Committee. In addition to the careful propositions made by this Committee, it is very interesting to note a point of view expressed by the President of the National Research Council of Canada, former President of the IUPAC Physical Chemistry Section, Dr. E. STEACIE. During the general assembly of IUGG in Toronto, Dr. STEACIE delivered an address in which among others he stated:

A problem which is closely linked to that of nationalism in science is that of Communication. The whole scientific effort is obviously dependent

on the free transmission of knowledge. There are today two essentially opposite facets to this problem.

In the first place there are those, and I am not among them, who are worried at the great increase in scientific publication and the increasing difficulty of keeping up with what is going on. The worriers along these lines seem to feel that the whole method of disseminating scientific information which was built up over the centuries—meetings, papers, abstracts, monographs, etc.—is breaking down. Figures are cited to show the impossible amount of reading which must be done, the number of pages published, etc. What seems to be forgotten is how much of this is trivial or positively worthless. After all, no one is foolish enough to want to read all the trade journals published in the world. It seems to me that it is not very much more difficult to keep up than it used to be—all that is necessary is to be willing to read and to be able to ignore the trivial. What is essential, however, is that abstract journals should not be allowed to languish. In many fields there is a real need for international co-operation in abstracting, and a real place for the activities of scientific unions in this field.

The main thing seems to me to avoid hysteria and in particular to avoid the suggestions of the information officers and the data-processors. The more extreme members of this school seem to envision an automatized scientific literature which is just as horrifying as other automatic devices. An assortment of machines, punched-cards and information specialists will make sure that everyone gets what he should read. Carried to its logical conclusion no one will ever read anything who understands it. It seems to me that there is really very little to worry about, provided that those who specialize in the organization of scientific literature are kept firmly in their place.

Monsieur le Professeur A. NESMEIANOV  
Président de l'Académie des Sciences de l'URSS  
14 B. Kaluzskaya  
Moscou

Bâle, le 31 mars 1959

*Objet:* Projet de plan tendant à intensifier et accélérer une collaboration internationale au sujet des résumés analytiques (referati)

Cher Président,

Grâce à votre intervention, il nous a été possible de discuter, le mercredi 25 courant, avec le Chef de l'Information scientifique de l'URSS МИХАИЛОВ, quelques problèmes et d'amorcer ainsi une prise de contact. Il va sans dire qu'au cours de cet entretien, qui n'avait pu être préparé d'une façon détaillée préalablement, il n'a pas été possible de prendre des mesures constructives. C'est la raison pour laquelle je me permets de vous écrire afin de vous expliquer le projet de plan tendant à améliorer la situation dans le domaine des résumés analytiques en chimie.

Comme vous le savez, les résumés analytiques (Referati – Zentralblatt-Referate – Chemical Abstracts) ne sont distribués parmi les chimistes que quelques mois, parfois même plus d'un an, après la parution du texte original, c'est-à-dire 2 ou 3 ans après avoir obtenu les résultats scientifiques. Vous n'ignorez pas non plus que les tentatives faites en vue d'obtenir des résumés analytiques de la part des auteurs n'ont abouti à aucun résultat, ces résumés en général n'étant pas suffisants pour la documentation et pour le «registre».

La situation dans ce domaine est telle que le chercheur en général doit perdre tellement de temps pour étudier la littérature scientifique qu'il ne lui en reste pas suffisamment pour faire lui-même un travail créateur. Le fait également que la distribution des résultats obtenus est retardée, ainsi que mentionné plus haut, a pour conséquence de diminuer considérablement la valeur de l'information scientifique.

Notre projet tend à procurer un résumé officiel qui devrait être, à l'état idéal de notre projet, distribué en même temps que le travail original. Il va sans dire que cette tâche est trop complexe pour être réussie en une fois, mais je pense qu'il serait souhaitable de tenter un essai avec un ou deux journaux scientifiques seulement pour commencer.

A titre d'essai, les trois organes importants qui s'occupent de la documentation et de l'information scientifique dans le domaine de la chimie (Referati, Chemical Abstracts et Chemisches Zentralblatt) se mettent d'accord afin de discuter ce projet et de trouver la meilleure solution.

Je voudrais seulement attirer votre attention sur le fait qu'il me semblerait utile si – dans la rédaction de ce ou ces journaux sélectionnés pour cet essai – un représentant des «Abstracting Journals» était présent. Ce représentant devrait s'entourer de suffisamment de collaborateurs capables de rédiger des résumés précis et de haute qualité dans leur propre domaine scientifique.

Une collaboration très étroite entre la rédaction des journaux, les auteurs des travaux scientifiques et les organes responsables de l'information scientifiques (referati) aboutirait à une accélération considérable de la distribution des résumés aussi bien qu'une amélioration de la qualité de ces résumés.

Pour terminer, je voudrais vous remercier encore une fois de votre concours et votre intérêt et j'aimerais exprimer le désir qu'une première réunion soit convoquée à Munich en vue d'étudier ce problème. Je vous propose que les personnalités suivantes composent ce premier groupe de travail:

- 2 représentants de votre pays
- 2 représentants de l'American Chemical Society
- 2 représentants du Deutscher Zentrallausschuss für Chemie

Cette réunion pourrait être organisée par le Secrétaire Général.

Cette lettre vous est adressée en triple exemplaire afin de vous rendre service si nécessaire.

Veuillez agréer, Cher Président, mes sincères salutations.

RUDOLF MORF

### **Réponse de l'Académie des Sciences de l'URSS à la lettre N° 2612 de Dr R. Morf**

1° Les chimistes de l'URSS partagent l'inquiétude exprimée par M. MORF, dans la lettre qu'il a adressée à M. A. N. NESMEIANOFF, sur le rythme lent des échanges de l'information chimique. Ils sont prêts à discuter toutes les propositions visant à améliorer la situation et prendront une part active dans toutes les entreprises mutuellement élaborées et pouvant rendre l'échange de l'information scientifique plus rapide.

2° L'échange des épreuves corrigées (feuilles bonnes à tirer) des revues scientifiques principales pourrait être l'une de ces entreprises. L'Institut d'Information scientifique de l'Académie des Sciences de l'URSS pratique ces échanges depuis trois ans dans les cadres prévus par l'Abstracting Board de l'Unesco. Il serait souhaitable d'examiner les résultats de ces échanges



et d'élaborer un plan tendant à perfectionner leur fonctionnement. L'Institut d'Information scientifique est prêt à participer à ce travail.

3° Il est évident que l'échange des feuilles bonnes à tirer n'est ni la mesure unique, ni la mesure principale, dans la voie de l'accélération de l'information scientifique.

4° Les chimistes de l'URSS partagent l'opinion de M. MORF qui déclare que les résumés analytiques faits par les auteurs ne résolvent aucunement le problème car l'expérience de tous les services de documentation montre que les résumés d'auteurs ne répondent pas à tout ce que l'on exige d'un résumé analytique.

5° Les chimistes soviétiques proposent ce qui suit comme un pas en avant dans la voie du développement de la coopération scientifique internationale, qui accélérerait sensiblement l'échange des informations scientifiques :

a) Les Rédactions des Revues analytiques principales du monde entier (notamment, Chemical Abstracts, Chemisches Zentralblatt, Referativnyy Zhurnal Khimiya) s'accordent entre elles et avec les Rédactions des Revues chimiques principales de leur pays afin de mener tout le travail de rédaction et de préparation jusqu'à l'impression des manuscrits des résumés analytiques, en même temps que le travail polygraphique des articles originaux à analyser.

b) La préparation du résumé analytique doit être terminée au moment où les dernières épreuves de l'article original sont approuvées par la Rédaction de la revue scientifique. A ce moment, la Rédaction de la revue analytique envoie à l'imprimerie le résumé tout fait. Il va de soi que dans le pays originaire le résumé sera publié à peu près en même temps que l'article original.

D'ailleurs chaque Revue analytique fera parvenir aux autres Revues analytiques non seulement toutes les feuilles bonnes à tirer de telle ou telle revue scientifique, mais aussi tous les résumés analytiques de tous les articles qui sont publiés. Ainsi, la Rédaction de la revue analytique des autres pays recevra les résumés analytiques (qu'il ne faudra plus que traduire) avant leur sortie de presse dans le pays originaire.

c) Les chimistes de l'URSS sont d'avis qu'il ne faudrait pas envoyer les résumés analytiques avant que l'article original ait été marqué du « bon à tirer », car l'expérience montre que très souvent l'auteur de l'article y apporte des changements et des suppléments, en corrigeant les épreuves, qu'il est tout à fait indispensable d'insérer dans le résumé analytique.

d) Afin de mettre en pratique ce système, il est indispensable que chaque pays, en rédigeant un règlement à l'usage des auteurs, prie ces derniers de donner à la Rédaction de la Revue chimique un exemplaire complet supplémentaire de l'article.

Une fois tout le travail de rédaction sur l'article terminé et le fascicule dans lequel l'article paraîtra déterminé, la Rédaction insérera tous les correctifs rédactionnels dans l'exemplaire supplémentaire de l'article et le transmettra à la Revue analytique.

Dans la Revue analytique, on fera tout le travail ordinaire de rédaction du résumé analytique en utilisant le *manuscrit* de l'article.

Les Revues chimiques transmettront également à la Revue analytique un exemplaire des dernières épreuves.

En cas de nécessité, la Rédaction de la Revue analytique fait les correctifs des résumés analytiques en utilisant les dernières épreuves de l'article, après quoi on donne ces résumés analytiques immédiatement à l'impression.

Ensuite, la Rédaction de la Revue analytique envoie par poste aérienne tous les résumés analytiques définitivement corrigés, ainsi que les épreuves de mise en page bonnes à tirer de la revue originale, aux Rédactions des autres Revues analytiques.



6° Au cours de la première année, ce système pourrait fonctionner à titre d'expérience pour un nombre restreint de revues. On peut déterminer ce nombre par voie de discussion. Les chimistes soviétiques proposent de prendre 5 à 10 titres (notamment: Journal de Chimie générale, Journal de Chimie inorganique, Journal de Chimie appliquée, Journal de Chimie analytique, Journal de Chimie colloïdale, Géochimie, Bulletin de l'Académie des Sciences de l'URSS – Section des Sciences chimiques, etc.).

Si le système fonctionne bien, on pourrait augmenter le nombre des revues.

7° Dans le cas où ces propositions seraient acceptées, il serait souhaitable d'unifier dans la mesure du possible les instructions aux analyseurs existant dans les Rédactions des trois revues analytiques principales (notamment, les modes de désignation, la répartition du matériel, etc.).

Referativny Journal Khimiya est prêt à prendre part à ces travaux.

It will be interesting to listen to the lecture "Über Dokumentation mit Hilfe des Elektronenrechners IBM 705" (Application of the Electronic Device IBM 705 as a Tool for Documentation and Retrieval) given in Munich on Wednesday, 2 September, 1959, at 4.45 p.m. by Dr. R. FUGMANN, Farbwerke Hoechst in Frankfurt.

\*

Many other Unions have convened meetings in USSR and their proceedings are printed also in Russian language. This is one of the reasons why the Secretary General has contacted the Academy of Sciences of USSR and asked for a short proceeding in Russian language regarding the VIIIth Mendeleiev Congress.

This report is drafted by PLATÉ and reads as follows:

## VIII МЕНДЕЛЕЕВСКИЙ ХИМИЧЕСКИЙ СЪЕЗД В МОСКВЕ

### Секция органической химии и технологии

Самой многочисленной среди 17 секций съезда была секция органической химии и технологии, на четырех подсекциях которой было сделано более 200 докладов. Естественно, что в краткой заметке даже невозможно эти доклады перечислить. Ниже весьма кратко изложены лишь наиболее интересные, с точки зрения автора, доклады, сделанные на этой секции.

Доклады носили разносторонний характер; многие были посвящены теории органической химии и выяснению механизмов различных реакций, причем были использованы кинетические и спектральные методы, методы меченных атомов и высоких давлений. В других докладах излагались общие и частные способы получения новых нужных для народного хозяйства соединений, физиологически активных препаратов, сырья для получения синтетических волокон, синтетического каучука, пластических масс, душистых веществ, моющих средств. В ряде докладов говорилось об усовершенствовании уже известных процессов, таких, например, как изомеризация и полимеризация, алкилирование, дегидрогенизация бутана и изопентана с целью получения бутадиена и изопрена. В докладе Д. В. Сокольского был рассмотрен практически важный вопрос об одновременной каталитической изомеризации и дегидрогенизации бутана с образованием изобутана и бутиленов. В. В. Перекалин рассказал о реакции непредельных нитросоединений с нуклеофильными реагентами — веществами содержащими подвижный атом водорода, такими как малоновый, ацетоуксусный, циануксусный и нитроуксусный эфиры,  $\beta$ -дикетоны,  $\beta$ -нитрокетоны. С помощью последующих превращений можно из по-

лученных соединений сравнительно просто получать разнообразные органические вещества, например  $\gamma$ -аминокислоты,  $\gamma$ -аминокетоны, пирролидоны, гетероциклические амины.

Много докладов было посвящено гетероциклическим соединениям, в частности Ю. К. Юрьев доложил о химии селенофена и его производных, Я. Л. Гольдфарб рассказал о разработанном методе получения алифатических соединений почти всех классов: углеводов, высших спиртов и гликолей, карбоновых кислот, аминокислот, трет. аминов и диаминов, простых эфиров, кетонов и др. — путем введения соответственных заместителей в тиофен и последующей восстановительной десульфуризации (гидрогенизации) производных тиофена. Этим путем можно легко получать бывшие ранее малодоступными соединения со сравнительно длинной неразветвленной или разветвленной цепью углеродных атомов, а также такие макроциклические соединения, как, например, циклотетрадеканон.

Ряд докладов А. Н. Несмеянова и его сотрудников был посвящен развитию новой химии ферроцена. Много докладов было посвящено вопросам стереохимии и, в частности, вопросам стереохимии присоединения по кратным связям. Б. А. Казанский на примере дифенилциклопропанов показал, что стерические факторы влияют на сопряжение фенильного и циклопропанового колец: в цис-1,2-дифенилциклопропане сопряжение, исследованное с помощью спектров комбинационного рассеяния света и по поведению в реакции каталитической гидрогенизации, выражено слабее, чем в транс-изомере, а в 1,1-дифенилциклопропане сопряжение почти отсутствует.

С интересом был заслушан доклад Ю. А. Жданова о получении С-замещенных производных углеводов. Р. Я. Левина сообщила о новом методе получения арилциклобутанов взаимодействием арилбутadiens с азодикарбоновым эфиром с последующим каталитическим разложением образующихся  $\Delta^{2,3}$ -арилтетрагидропиридинов.

В докладе Е. А. Карпейской, А. А. Толстопятовой и А. А. Баландина было показано, что рений представляет собой многообещающий катализатор органических реакций; в его присутствии протекают реакции дегидрогенизации спиртов, циклогексановых углеводов, кумола до  $\alpha$ -метилстирола, происходит образование  $\gamma$ -бутиролактона и  $\gamma$ -оксимасляного альдегида из бутандиола-1,4.

Внимание производственников привлек доклад Ю. Г. Мамедалиева, предложившего новый технологический процесс хлорирования углеводородов — метана, этана, пропана и бутана — в «кипящем» (псевдооживленном) слое катализатора.

Среди работ по алкилированию следует отметить исследование И. П. Цукерванника, который разработал эффективный способ проведения реакций конденсации с отщеплением галоидоводорода с использованием в качестве катализатора вместо хлористого алюминия порошков металлов Cu, Mo, W, C<sub>2</sub>, Ti, Ce, Z<sub>2</sub>. Реакция протекает по гомолитическому механизму; в нее вступают, с одной стороны, галоидные алкилы и ацилы, а с другой — производные бензола и нафталина, а также такие соединения, как декалин, изооктан, малоновый и ацетоуксусный эфиры.

Большое внимание было уделено вопросам гидратации ацетилена и этилена; в частности, в ряде работ были предложены новые катализаторы для замены ртутных в процессе гидратации ацетилена.

Ряд докладов был посвящен различным процессам окисления: этилена в окись этилена, твердого парафина, одноосновных карбоновых кислот до двухосновных, которые могут быть использованы для получения синтетических волокон.

Многие доклады были посвящены реакциям теломеризации олефинов, химии перфторсоединений, фосфорорганических соединений, реакциям винилирования органических веществ, деструктивному нитрованию олефинов, синтезам на базе СО и Н<sub>2</sub>, синтезу и реакциям борорганических соединений. Большинство докладов вызвало оживленную дискуссию.

(А. Ф. Платэ)

**V. XXth CONFERENCE AND XVIIth CONGRESS—MUNICH**  
**26 August—6 September, 1959**

**(a) XXth Conference—26–29 August, 1959**

All steps have been taken to organize the XXth Conference. The agenda and the full programme including also indication of the meeting rooms in the premises of the Technische Hochschule in Munich is given hereafter for the convenience of all those who are interested in the Conference:

The XXth International Conference of Pure and Applied Chemistry will be opened by the meeting of the Bureau of IUPAC on Tuesday afternoon, 25 August, 3 p.m., 1959.

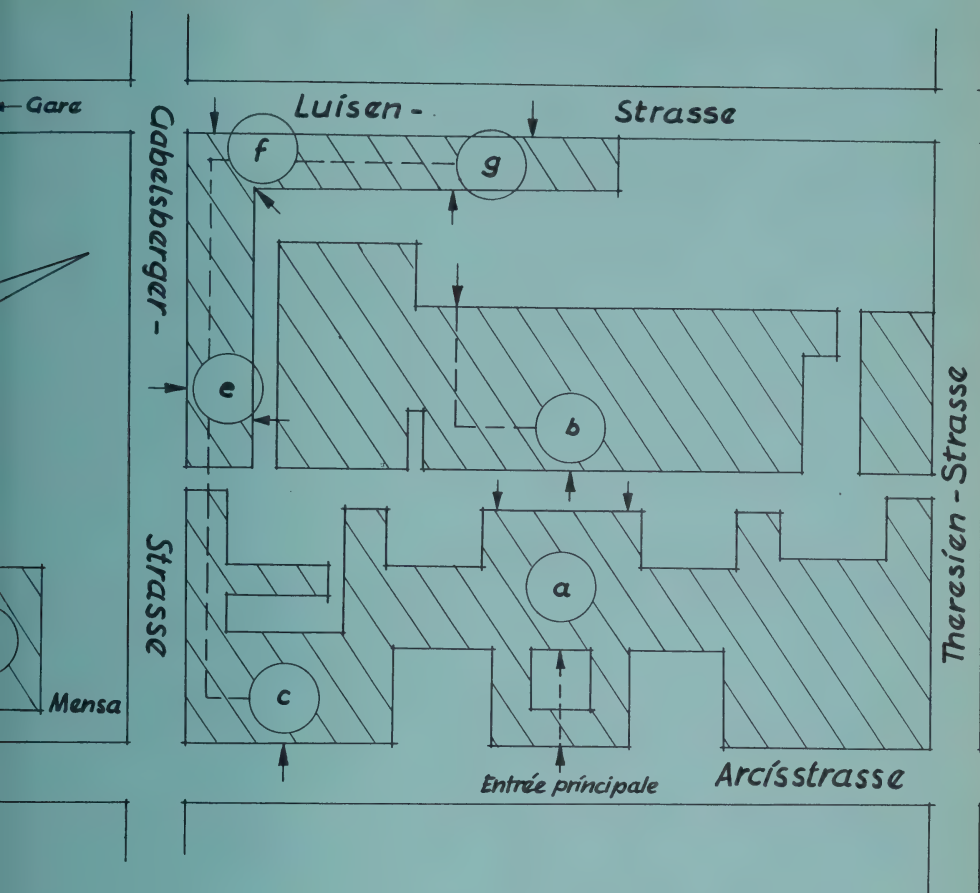
The Council meetings are scheduled for Wednesday, 26, 9.30 a.m., and Saturday, 29 August, 9.30 a.m., 1959.

**Draft Agenda for the XXth Conference**

Meetings of the Bureau and the Council

- (1) Statutory Report of the President on the General State of the Union
- (2) Adoption of the Comptes Rendus of the XIXth Conference
- (3) Ratification of the appointment of a Finance Committee
- (4) Ratification of the appointment of a Drafting Committee
- (5) Biennial Report of the Honorary Treasurer and of the auditors
- (6) Member countries:
  - (a) Adoption of new members (Argentina, Bulgaria, Republic of China [Taiwan])
  - (b) Ratification of the admission of Canada and Japan as members of category A
- (7) Budget for 1960–1961
- (8) Limitation of the number of Titular Members in Divisions and Commissions
- (9) Approval and ratification of the decisions taken by the Executive Committee
- (10) Adoption of the Section Presidents' Reports previously submitted to the Bureau and the Council in writing, in English and French
- (11) Final adoption of the tentative nomenclature rules and their publication
- (12) Possible proposal of tentative nomenclature rules
- (13) Report of the Publication Committee and decisions to be taken
- (14) Problem regarding abstracting and documentation
- (15) Rules regarding the election and term of office of the officers of the Union and of the members of Commissions
- (16) Associate Members
- (17) Working committee to report on the ISO recommendations regarding the fundamental units of mechanics—MKSA/CGS system
- (18) Problems regarding the Applied Chemistry Section
- (19) Report of the Section Presidents on the results of the Conference
- (20) Report of the Finance Committee
- (21) Election of the Executive Committee, of the Bureau and of Titular Members
- (22) Meetings scheduled for 1960–1961
- (23) Date and place of the XXIst Conference and the XVIIIth Congress
- (24) Programme and subjects of future Congresses (see resolution by the Section Presidents of 9 April, 1958)
- (25) Affiliation of the Congress of Catalysis, the World Petroleum Congress, etc.
- (26) Any other business





- a Zentrale – Büro Dr. Morf – Honorary Treasurer –  
Bankschalter – Information – Sitzungssaal Council –

Senatssaal – 1020 – 1024 – 1025 – 1060  
1061 – 1062 – 2020

- b 908 – 909 – 910 – 913 – 916 – 922

- c 150 – 364g

- d Mensa A, B, C, D, E, F

- e 366

- f 396

- g 563



All the six Sections of IUPAC and nearly all of the 36 Divisions and Commissions will meet at Munich in open and closed sessions during the week before the XVIIIth Congress.

### Draft Programme for the XXth Conference

All meetings of the Conference will be held in the new premises of the Institute of Technology (Technische Hochschule), Munich.

Executive Committee . . . . .	Monday, 24, all day; Saturday, 29, after the Bureau meeting, and on other days	Mensa Club A
Bureau . . . . .	Tuesday, 25, 15.00–18.00 Saturday, 29, 16.00–18.00	Mensa
Council . . . . .	Wednesday, 26, 9.30 Saturday, 29, 9.30	Raum bei der Zentral
Meeting of Section Presidents and Secretaries with the Secretary General . . . . .	Monday, 24, 17.00 Tuesday, 25, 9.00	Club A
Meeting of the old and the newly elected Presidents and Secretaries of Sections, Divisions and Commissions . . . . .	either Sunday, 30, or Monday, 31—at the convenience of the participants	Raum nach Vereinbarung
Publication Committee . . . . .	Friday, 28, 9.30–12.00	Club A
Joint meeting of the Commission on Physico-Chemical Symbols and Terminology, Inorganic Nomenclature Commission, Organic Nomenclature Commission, Biological Nomenclature Commission and representatives of the IUB Commission on Enzymes . . . . .	Saturday, 29, 9.00–12.00	HS 366
(1) PHYSICAL CHEMISTRY SECTION in den Räumen der chem. Institute		
1 Section Committee . . . . .	Wednesday, 26, 17.00	910
2 Meeting of the whole Section . . . . .	Thursday, 27, 9.00	HS 908
3 Commission on Physico-Chemical Symbols and Terminology . . . . .	Wednesday, 26, 9.00–12.00, 13.00–17.00 Thursday, 27, 14.00–19.00 Friday, 28, 9.00–12.00	910
4 Joint meeting of the Commission on Physico-Chemical Symbols and Terminology, Inorganic Nomenclature Commission, Organic Nomenclature Commission, Biological Nomenclature Commission and representatives of the IUB Commission on Enzymes . . . . .	Saturday, 29, 9.00–12.00	HS 366
5 Commission on Chemical Thermodynamics . . . . .	Friday, 28, 9.00–12.00 Friday, 28, 16.00–17.00	913

6 Subcommittee on Experimental Thermochemistry . . . . .	Wednesday, 26, 14.00–17.00	916
	Friday, 28, 14.00–15.00	913
7 Subcommittee on Experimental Thermodynamics . . . . .	Thursday, 27, 14.00–17.00	908
	Friday, 28, 15.00–16.00	913
8 Commission on Electrochemistry . . . .	Thursday, 27, 9.00–12.00	916
	Friday, 28, all day	
9 Commission on Macromolecules . . . .	meets at Wiesbaden	
	12–16 October	
0 Commission on Physico-Chemical Data and Standards . . . . .	Thursday 27, 14.00	916
	Friday, 28, 9.30	922
1 Commission on Molecular Structure and Spectroscopy . . . . .	Thursday, 27, 14.00–19.00	563
	Friday, 28, 14.00–19.00	
Joint Commission on Applied Radio-activity . . . . .	does not meet	
CITCE . . . . .	meets in Vienna,	
	28 September to 3 October	
3 Joint meeting of the Commission on Electrochemistry and the Commission on Physico-Chemical Symbols and Terminology . . . . .	date not yet fixed	916 od. 910, 805
4 Working group to study the problem of the CGS- and MKSA-systems . . . . .	Wednesday, 26, 15.15	910

(2) INORGANIC CHEMISTRY SECTION in den Räumen der chem. Institute

1 Section Committee . . . . .	Wednesday, 26, 17.00	909
	Thursday, 27, 9.00	910
2 Commission on Atomic Weights . . . .	Wednesday, 26, 14.00	922
	Thursday, 27, 10.00	
3 Nomenclature Commission . . . . .	meets during the whole Conference except on 27 August	909
4 Joint meeting of the Inorganic Nomenclature Commission, Organic Nomenclature Commission, Biological Nomenclature Commission, Commission on Physico-Chemical Symbols and Terminology and representatives of the IUB Commission on Enzymes . . . . .	Saturday, 29, 9.00–12.00	HS 366
5 Commission on High Temperatures and Refractories . . . . .	two meetings, possibly on 27 and 28 August	396
6 Subcommittee on Gases . . . . .	either 27 or 28 August	908 or 909
7 Subcommittee on Condensed States . .	either 27 or 28 August	908 or 909

8 Commission on Geochemistry . . . . .	Wednesday, 26, afternoon	913
	Thursday, 27, all day	913

### (3) ORGANIC CHEMISTRY SECTION

in den Clubräumen der Mensa

1 Section Committee . . . . .	Wednesday, 26, 17.00–19.00	B
2 Nomenclature Commission . . . . .	at Bad Schachen from 17–22 August, and at Munich during the whole Conference (closed meeting)	B
3	Thursday, 27, 14.00–17.00 (open meeting)	B
4 Joint meeting of the Organic Nomenclature Commission with the Biological Nomenclature Commission . . . . .	Friday, 28, 14.00–17.00	HS 366 or Club B
5 Joint meeting of the Organic Nomenclature Commission, Inorganic Nomenclature Commission, Biological Nomenclature Commission, Commission on Physico-Chemical Symbols and Terminology and representatives of the IUB Commission on Enzymes . . . . .	Saturday, 29, 9.00–12.00	HS 366
6 Commission on Codification, Ciphery and Punched Card Techniques . . . . .	at Bad Schachen from 22–25 August, and at Munich during the whole Conference (closed meeting)	C
7	Friday, 28, 9.00–12.00 (open meeting)	HS 366 or C

### (4) BIOLOGICAL CHEMISTRY SECTION

in den Clubräumen der Mensa

1 Section Committee . . . . .	Wednesday, 26, 14.00	E
	Friday, 28, 10.00	
2 Section Committee with all Commissions	Thursday, 27, 10.00	HS 366
3 Nomenclature Commission . . . . .	Monday, 24, 10.00–12.00	E
	14.00–17.00, 20.00–22.00	
	Tuesday, 25, 9.00–12.00,	
	14.00–17.00, 20.00–22.00	
	Wednesday, 26, 9.00–12.00	
4 Joint meeting of the Biological Nomenclature Commission with the Organic Nomenclature Commission . . . . .	Friday, 28, 14.00–17.00	HS 366 or B
5 Joint meeting of the Biological Nomenclature Commission, Inorganic Nomenclature Commission, Organic Nomenclature Commission, Commission on Physico-Chemical Symbols and Terminology and representatives of the IUB Commission on Enzymes . . . . .	Saturday, 29, 9.00–12.00	HS 366

6 Commission on Protein Standards . . .	Monday, 24, 10.00 Thursday, 27, 14.00	F
Commission on Clinical Chemistry . . .	does not meet	
Subcommission on Clinical Enzyme Units (with representatives from IUB) . . .	at Starnbergersee Tuesday, 25, 14.00	
8 Subcommittee on the Nomenclature of Co- enzymes (with representatives from IUB)	Tuesday, 25, 14.00	F
IUB Enzyme Commission . . . . .	at Starnbergersee Tuesday, 25, 10.00 Wednesday, 26, 10.00–14.00 Thursday, 27, 10.00 Friday, 28, 10.00	
10 Joint meeting of the IUB Enzyme Com- mission and the Biological Nomenclature Commission . . . . .	Thursday, 27, 14.00–17.00	HS 366
IUB-IUPAC Co-ordinating Committee .	at Starnbergersee Monday, 24, 14.00	

(5) ANALYTICAL CHEMISTRY SECTION in den Clubräumen der Mensa

1 Section Committee . . . . .	Monday, 24, 12.30–16.30 (closed meeting) Wednesday, 26, 17.00–20.00 Friday, 28, 13.00–18.00	D D D
2 Commission on Analytical Reactions . .	Wednesday, 26, 9.00–12.00 Thursday, 27, 13.00–17.30	D E
Commission on Microchemical Techniques	does not meet	
3 Commission on Terminology and Expression of Analytical Results . . . .	Thursday, 27, 13.00–17.30 Friday, 28, 9.00–12.00	D D
4 Commission on Optical Data . . . . .	Wednesday, 26, 13.00–17.30 Thursday, 27, 9.00–12.30	F F
5 Commission on Electrochemical Data . .	Wednesday, 26, 9.00–12.30 Friday, 9.00 (open meeting)	F F
Commission on Equilibrium Data . . .	does not meet	

(6) APPLIED CHEMISTRY SECTION in Hör- und Zeichensälen über der Zentrale

1 Section Committee . . . . .	Wednesday, 26, 14.30 *Friday, 28, 9.30	Senatssaal Senatssaal
2 Food Division . . . . .	Thursday, 27, 14.30	Senatssaal
3 Commission on Trace Elements in Food Vitamin Assay Subdivision . . . . .	Thursday, 27, 9.30 does not meet	2020
4 Ad Hoc Committee on Food Additives .	Wednesday, 2 September, 14.30	Congress- gelände



5	Water, Sewage and Industrial Wastes Division . . . . .	2 meetings during the days when Symposium B is held, presumably 31 August to 2 September	Congress-gelände
6	Pulp, Paper and Board Division . . . .	Thursday, 27, 9.30, 14.30	150
7	Plastics and High Polymers Division . .	at Düsseldorf from 19-21 October	
8	Crop Protection Products Division . . .	Thursday, 27, 9.30, 14.30	364 g
9	Organic Coatings Division . . . . .	Thursday, 27, 9.30, 14.30 *Friday, 28, 9.30, 14.30 Saturday, 29, 9.30, 14.30	1024, 1061 1062 1061
10	Toxicology and Industrial Hygiene Division . . . . .	Thursday, 27, 14.30 Friday, 28, 14.30	1025 1025
11	Fermentation Division . . . . .	Saturday, 29, 9.30	1062
12	Commission A: Methods of Determination of Fusel Oils . . . . .	Friday, 28, 9.30, 14.30	364 g
13	Commission B: Methods of Characterizing and Evaluating Dried Yeasts . . . . . Ad Hoc Committee to consider whether a Chemical Engineering Division should be formed . . . . .	Friday, 28, 9.30, 14.30 will be decided later	1020, 2020
14	Oils and Fats Division . . . . .	Thursday, 27, 9.30, 14.30 *Friday, 28, 9.30, 14.30	1060 1060
	Ad Hoc Committee on Surface Activity .	does not meet	

\* Overlapping, a change might therefore be necessary!

*Note:* Some of the dates given in this Draft Programme have been fixed arbitrarily and may be changed again. The Presidents of Sections are invited to inform the Secretary General of any suggested modification at their earliest convenience.

### Invitations

*Tuesday, 25 August, 1959:* On behalf of the Organizing Committee of the XVIIth International Congress of Pure and Applied Chemistry, Professor E. WIBERG, President, invites the members of the Bureau, Presidents and Secretaries of Sections, Divisions and Commissions and their ladies to dinner at the Hotel "Bayerischer Hof".

*Saturday, 29 August, 1959:* Professor C. WURSTER, President of the Gesellschaft Deutscher Chemiker invites all members of the Council to a luncheon at the Hotel "Vier Jahreszeiten".

At the moment of printing this Information Bulletin the Secretaries of some Sections, Divisions and Commissions have been kind enough to submit agenda and programmes of Section and Commission meetings as follows:

**Meeting of the Physical Chemistry Section Committee in Munich**

Wednesday, 26 August, 17.15 p.m.

*Agenda*

- (1) Report 1957-1959
- (2) Elections
- (3) MKSA- and CGS-systems
- (4) Activity of the Physical Chemistry during the Munich Conference
- (5) Future activity of the Section.

Original signed by: Prof. W. KUHN

**Meeting of the Physical Chemistry Section in Munich**

Thursday, 27 August, 9.15 a.m.

*Agenda*

- (1) Report of Activity 1957-1959 of the Section of Physical Chemistry
- (2) Elections
- (3) Activity of Commissions during the Munich Conference and report on this activity towards the end of the Conference
- (4) MKSA- and CGS-systems
- (5) Discussion on the future work of the Physical Chemistry Section and of the Commissions.

Original signed by: Prof. W. KUHN

**Meetings of the Commission on Physico-Chemical Symbols  
and Terminology in Munich**

26-29 August, 1959

The meetings will be held:

Wednesday, 26 August, 9.30 a.m. and 2.00 p.m.

Thursday, 27 August, 2.00 p.m.

Friday, 28 August, 9.30 a.m.

On Saturday, 29 August, 9.00 a.m. there will be a joint meeting arranged by the Commission on the Nomenclature of Biological Chemistry, to which our Commission is invited.

*Draft Agenda*

- (1) Proposal from the ad hoc committee concerning the CGS- and MKSA-systems of units
- (2) Report on activity since Copenhagen 1958
- (3) Report on the standardization of pH by R. G. BATES and E. A. GUGGENHEIM. Dr. BATES is expected to be present at the meeting
- (4) The letter from Prof. GERASSIMOV dated 10 July, 1958, and circulated in February 1959 together with the reports from Copenhagen 1958 may give rise to certain amendments in our present recommendations. Such amendments will be discussed

- (5) Definition of certain items in our list. The matter has been treated by Prof. H. HØJGAARD JENSEN and the chairman. The former has been invited to attend the meeting
- (6) Constitution of the Commission. Members are invited to send in their proposals for new members as soon as possible
- (7) Other business matters if any.

For J. A. CHRISTIANSEN

### **Meetings of the Commission on the Nomenclature of Inorganic Chemistry**

During the conference in Munich it is suggested that the Commission hold the following meetings:

*Wednesday, 26 August, 1959*

- 14.00 Comments on the 1957 Rules on inorganic nomenclature, published by Butterworths in London
- Discussion of the programme of the work of the Commission for the next few years

*Friday, 28 August, 1959*

- 9.00 Designation of the groups of the periodic system
- 14.00 Nomenclature of hydrides and metalorganic compounds. Discussion on collaboration with the Commission on Organic Chemical Nomenclature in this field.

*Saturday, 29 August, 1959*

- 9.00 Joint meeting of the following Commissions:  
     Physico-Chemical Symbols and Terminology  
     Nomenclature of Inorganic Chemistry  
     Nomenclature of Organic Chemistry  
     Nomenclature of Biological Chemistry

On 27 August no meeting of the Commission is planned because of meetings of the Section Committee and the Commission on Physico-Chemical Symbols.

If necessary meetings may be held also during the Congress in the following week.

K. A. JENSEN

### **Meetings of the Biological Chemistry Section Committee**

Wednesday, 26 August, 14.00

Friday, 28 August, 10.00

#### *Agenda*

- (1) Minutes of the meetings of 18 July, 22 July, 24 July, 1957
- (2) Report of the Commission on Clinical Chemistry
- (3) Report of the Commission on Proteins
- (4) Report of the Commission on Biochemical Nomenclature
- (5) Report of the IUPAC representatives on the Coordinating Committee (IUB-IUPAC)
- (6) Report on interim decisions of the Executive Committee, IUPAC
- (7) Elections to the Commission and to the Section Committee
- (8) Election of officers
- (9) Future Conferences and Congresses

## Plenary Meeting of the Section for Biological Chemistry

Thursday, 27 August, 10.00

### *Agenda*

- (1) Discussion of the work of the Commissions
- (2) Report on actions of the Council and Executive Committee, IUPAC
- (3) Report on elections

## Meeting of the Applied Chemistry Section Committee in Munich

Wednesday, 26 August, 14.30

### *Agenda (Excerpt)*

- (1) Apologies for absence
- (2) President to welcome new members
- (3) Minutes of previous meeting (24 July, 1957) to be taken as read.  
(Comptes Rendus XIXth Conference (Paris) page 161)
- (4) *Matters arising out of the minutes*
  - (a) *Surface Activants Division* (see Min. 44 and 52 (a))

The Union decided to form an ad hoc committee to consider the desirability of forming such a Division and invited the Applied Chemistry Section to initiate its formation. At the suggestion of the Applied Chemistry Section, Sir ERIC RIDEAL was invited to act as Chairman. He duly produced the report published in Information Bulletin No. 8, p. 50 and 51. Section Committee to decide whether or not to support the formation of a Surface Activity Division attached to the Applied Chemistry Section or to recommend that such a Division be attached to the Physical Chemistry Section. In either case any Commissions attached to the new Division might be joint Commissions with both Sections.

#### *(b) Chemical Engineering Division* (see Min. 47)

Mr. JULIAN LEONARD accepted the invitation mentioned in Min. 47 and as a result produced the report published in Information Bulletin No. 8, p. 20 and 21. (To be considered under item 6 (b).)

#### *(c) Draft Rules of the Section* (see Min. 52d)

The drafting of the new rules of the Section was reported to Council in Paris (1957) following which they are to be presented to the Bureau for approval (see Min. 20 of Executive Committee Moscow 1959—Dr. MORF's letter 2923).

### *(5) Reports from Divisions*

#### *Oils and Fats Division*

To confirm:

1. the re-admission of two Argentine national delegates
2. the admission of three Irish national delegates
3. to submit for approval three national Swedish delegates (names to be provided)

#### *Toxicology and Industrial Hygiene Division*

To consider the formation of two Commissions to be attached to this Division. This matter has already been mentioned in Min. 53d (Paris) and has since been presented as a recommendation from the Symposium held



jointly by this Division and the "Permanent Commission and International Association for Industrial Medicine" in Prague (April 1959). The two Commissions would be for the study of:

1. Methods of determination of toxic substances in the atmosphere.
2. Methods of characterisation and determination of such toxic substances (and of their metabolites) in man (particularly in blood and urine).

#### *Crop Protection Division*

To request that the name of the Division be changed to the "Pesticide Division" as the latter title would better cover its interests and activities (see Information Bulletin No. 6, p. 16).

#### *Food Division*

1. To record the completion of the tasks of the Vitamin Assay Commission and obtain sanction for its being officially dissolved.

2. To report that the Trace Elements Commission is expected to complete its tasks later this year or early next when it also will request to be officially dissolved.

3. In view of (2) and the possibility that the Union may not consider the Food Additives ad hoc Committee should be attached to the Food Division, it is not proposed to make any changes in membership of the Trace Elements Commission nor in the Division Committee as both may shortly be dissolved.

(6) *Consideration of various Minutes of the Executive Committee March 1959 (Dr. Morf's letter No. 2923, 22 July, 1959)*

(a) New Titular Members and Associate Members to be appointed for 2 years only (Min. 13, resolution v).

(b) "Chemical Engineering" and "Industrial and Engineering Chemistry" in relation to the Applied Chemistry Section in particular and to the Union as a whole (Min. 20, resolutions iii and iv). (It is hoped to obtain further clarification of this Minute before the Munich Meeting).

(c) Limitation of the number of Titular Members in Divisions and Commissions to a maximum of 8 instead of 10. (Min. 27, resolution i).

(d) Titular Membership of Section Committees to consist of Chairmen of Divisions and Commissions as ex officio members plus six extra members (Min. 27, resolution ii).

(7) *New Officers of the Section.*

### **A note on the work of Commission IV**

As the work originally entrusted to Commission IV is now nearing completion, and as I shall shortly be handing over the Chairmanship, it seems appropriate that I should submit a brief summary of the Commission's work to date, with a few remarks on its possible future activities. This is the more desirable as I understand that the future programme is due to be discussed at the next meeting of the Section Committee.

*Original terms of reference.*—The terms of reference of the Commission are given in the Minutes of its first meeting held in New York on 11th September, 1951. They may be summarised as follows.

- (1) Format of analytical methods.
- (2) Symbols and units for the expression of analytical results.
- (3) Definitions of concepts and terms related to precision and accuracy.

- (4) Definition of terms used in sampling and quality control.
- (5) (For future consideration) Desirability of studying the planning of tests and the definition of terms relating to this problem.
- (6) Consideration to be given to the desirability of preparing a list of definitions and glossary, in different languages, of terms used in specialised techniques (e.g. polarography, spectrochemical analysis, etc.)

*Work already done.*—It will be of interest to consider the above items in order, and to see how far the original terms of reference have been dealt with.

#### (1) *Format of analytical methods*

After several years work, a document was agreed by the Commission and presented to the Section Committee. At about this time it was noted that the Committee ISO-TC/47 had an almost precisely similar document in draft form and for this and other reasons the Section Committee decided not to recommend publication of our document. Opportunity was taken, however, to comment on the ISO draft, which was agreed to be satisfactory subject to minor amendments.

#### (2) *Symbols and units*

In the early days of the Commission, considerable attention was given to this subject. It soon became evident, however, that many of the symbols and units used by analysts were not peculiar to them but were derived in the first place from specialists in the various fields of science. It was also clear that the various specialised interests were being actively followed by committees of the ISO and it was generally agreed by members of the Commission, and duly reported in their Minutes, that wherever possible such work should be left to ISO, which, by reason of its contacts with the national bodies, is particularly well qualified to conduct it. The Commission has, however, kept closely in touch with the work, particularly with that of ISO-TC/12 and ISO-TC/69, to which committees it has from time to time put forward comments. ISO-TC/12 has for some years been engaged in scrutinising all the chief units of mathematics, physics and chemistry and the only question arising is whether this work is of such magnitude that material of special interest in analytical chemistry may be too long deferred. It is with this in mind that our Commission has dealt, in modified form, with some of the statistical terms (see under 3 and 4 below), without prejudice to the work still being carried out by ISO-TC/69. Should any special case be made out for asking the Commission to do further detailed work of this kind it can readily be undertaken, but the view of present members is that we should avoid as far as possible duplication of work already being satisfactorily performed by ISO.

#### (3) *Definition of terms relating to precision and accuracy*

#### (4) *Terms in sampling*

Work under these two headings is a good illustration of what was meant by the remarks made above.

ISO-TC/69 has done, and is still doing, much work in standardising terms used in general statistics. It is obvious, however, that much remains for discussion by the statisticians themselves before finality can be reached. When that happens, the results of their discussions will be available to analytical chemists. In the meantime, however, analysts, as day to day users of statistical methods, are in need of guidance. It was with this in mind that the Commission has worked on a document on "Simplified list of terms used in testing".

This has been agreed by the Commission in English, French and Spanish versions: these are to be presented to the next meeting of the Section Committee. A German version is also practically complete but has involved some difficulties in connection with German practice, which it is hoped to resolve by personal discussions at Munich.

#### *(5) Planning of tests*

This item, mentioned in the Commission's remit as a possible future subject of work, was considered at meetings in Lisbon and Paris, particularly with reference to the planning of inter-laboratory tests. It was noted that this subject was under consideration by the ASTM Committee E 11, of which one of our members is also a member, and it was generally agreed that our Commission should watch the position but not initiate work on its own account.

#### *(6) List of definitions and multi-lingual glossary in specialised fields*

A start has been made on this in connection with items 3 and 4 above, which represent the Commission's views on a suitable multi-lingual glossary of statistical terms used by analysts. Experience gained in this work convinces us of the utility of extending the effort into other fields.

#### *Future work of the Commission*

From what has been said above, it will be seen that most of the items mentioned in the original terms of reference have now been dealt with in whole or in part. It remains to enquire what the future policy of the Commission is to be.

Experience gained in the work under items 3, 4 and 6 above convinces us of the utility of extending the effort in other fields. It has drawn our attention to the numerous possible causes of confusion which may arise from differences in the use of technical terms in different countries. In this connection, a note by Mr. A. H. DODD, attached as an appendix, will be of interest.

If progress is to be made, however, the Commission will need outside co-operation in advising on the most profitable fields of enquiry. Moreover, since it cannot include specialists in all the various analytical techniques, it must rely on the "experts" in other Commissions to draw attention to topics in their own fields on which they feel that work similar to that already done by the Commission would be valuable. In such cases, one or more specialists might well be co-opted on the Commission to assist in the work.

In conclusion, I should like to point out that the Commission, having carried out most of the work contained in its original terms of reference, cannot continue to operate satisfactorily without the support of the Section Committee, to which it must look for guidance and direction. With such guidance, there is in my view much fruitful work that it can usefully perform.

L. W. Codd



Appendix

Synonyms in various languages

A glossary of usages in the various languages can only be compiled by nationals of the various countries. A listing of synonyms is important. According to our former Chairman the existence of a synonym "Mean" for "Average" may cause difficulty in languages which do not possess two forms. We say in English "Arithmetic Average" but not "Geometric Average" or "Harmonic Average" although there is no reason why we should not. "Range" in English is a statistical concept. It is not the same as "Rang" in German. In that language it is given as "Differenz" or "Variationsbreite" or "Variationsweite". The latter are cognate with "Spreidsbreedte" in the Dutch and "Variasjonsbredde" in the Norwegian. "Differenz" in German and "Etendue" and "Amplitude" (equivalent to Range) in the French have different meanings in English.

In order to solve some of these problems it is suggested that the simpler way would be to give exact examples of their use in the particular languages in simple sentences, e.g.

"The simplest measure of disperion (spread or scatter) is the difference between the greatest and least value in a series—the so-called Range".

In definitions prepared by the Commission one term is used for one concept. In the I.S.O. list synonyms are introduced widely without sufficient explanation and indeed synonyms are sometimes used to define themselves.

The following list gives some of the terms used in the I.U.P.A.C. draft together with the synonyms or equivalents used by I.S.O.

<i>IUPAC</i>	<i>ISO-TC/69</i>
<i>Commission IV</i>	
Item	Individual (ISO French = Individu) Unit Entity Object Member Element—used in statistics Specimen = selected item Test Piece = a fabricated item Part = one of a similar number in engineering
Series	Set Group Collection ISO defines special series as:— Collection of Units Collection of Members Group of Units
Portion	Fraction Part = portion of a whole and not necessarily one of a similar number
Characteristic	Property Quality Attribute—in statistics this usually applies to a discontinuous distribution



Observation	Value. Measurement. Reading. Result. Figure. Determination. Quality.
ISO	defines "Valeur observée" (I.3) "the result of an observation". This means something quite different from "an observed result".
Tests Results	"Values" and "Observations" in ISO are used when "Test result" is used unambiguously in the IUPAC draft
Average	Mean
Precision	No synonym in English in the statistical meaning
	<i>Note:</i> "Dispersion" is the inverse of "Precision". The <i>lower</i> the standard deviation of a series of test results the <i>higher</i> the "Precision" but the <i>lower</i> the "Dispersion"
	Dispersion Synonyms. Scatter and spread.
Range	No synonym in English. A statistical term.
Average Deviation	Mean Deviation. A statistical term.
Average Difference	Mean Difference. Not a statistical term. Not to be confused with the former. It is calculated with regard to sign.

A. H. DODD

#### (b) XVIIth Congress—30 August–6 September, 1959

All the arrangements for a successful XVIIth Congress have been made by the Organizing Committee in Munich. In the last Information Bulletin all the main and section lectures have been listed (see pages 30 to 33).

#### *Papers to be read:*

There have been filed 488 papers to be read during the Congress. The abstracts are in press and will be distributed on 24 August, 1959, in the Congress hand-bag in Munich.

It has to be noted that the Geochemistry Commission has cancelled the Symposium on Geochemistry which should have been held in Göttingen on 21 and 22 August, 1959. This has to be deplored.

## Second Issue of Information Bulletin No. 9

### INTRODUCTION

This second issue of Information Bulletin No. 9 gives a draft summary of the principal results achieved during the XXth Conference. The intention is to provide the National Delegates and Titular Members with an excerpt of the resolutions taken and the recommendations made by Sections, Divisions, and Commissions.

It is hoped that this information will be also of interest and help to all those attending the XVIIIth Congress which opens on Sunday, August 30th. By doing so, it can be expected that the aims and activity of IUPAC will be made known the world over and that the way in which it works may be more clearly recognized.

The Information Bulletin gives the names of the new officers of the Union who have been elected during the Conference. You also will find the composition of the 6 Section Committees as far as we know them at present.

Forthcoming meetings are also incorporated, together with an activity programme for the next two years.

The main resolutions which have been taken include the adoption of three new member countries and the transfer of two member countries into the highest category. Very important decisions have been taken regarding the IUPAC publications, and the creation of an international journal "Pure and Applied Chemistry" is underway.

A most fundamental scientific result is the proposal of the isotope Carbon-12 as the basis of the scale of atomic weights. This proposal will have its influence throughout chemistry and all the related sciences; and finally the way has been cleared for the unification of the hitherto existing different practices in various disciplines. This crowns efforts which have extended over 40 years.

In the Physical, Inorganic, Organic and Biological Chemistry Sections, important progress has been made regarding agreement about symbols, terminology and nomenclature rules.

In the Applied Chemistry Section the formation of three new divisions has been proposed, namely, on surface activity, corrosion and industrial carbon. The best method of incorporating chemical engineering into the activities of the Union is under active discussion.

Further cooperation is being arranged between IUPAC and the World Petroleum Congress, the International Congress on Catalysis and the International Symposium on the Reactivity of Solids. Closer cooperation with the International Union of Geophysics and Geodesy is envisaged.

Finally the Finance Committee appointed during the Conference and presided over by ARNE TISELIUS, past President of IUPAC, made very valuable suggestions concerning the income of the Union. These proposals will be circulated among all the adhering member countries and, if acceptable, approved.

The next meeting of the IUPAC Bureau will be held in spring 1960 in Leningrad. The invitation of Canada to hold the XXIst Conference and the XVIIIth International Congress in Montreal has been accepted with great pleasure.

## NEW OFFICERS

### Executive Committee

W. ALBERT NOYES jr., President of the Union  
Sir E. CHARLES DODDS, Treasurer  
B. A. KASANSKI  
W. KLEMM  
MAURICE LETORT  
R. MORF, Secretary General  
Sir ALEXANDER TODD

### Bureau

#### President

W. A. NOYES jr., Department of Chemistry, University of Rochester (NY)

#### Vice-Presidents

G. CHAUDRON, Membre de l'Institut, Directeur de l'Ecole nationale supérieure de Chimie, 11, rue Pierre-Curie, Paris (France)  
W. KLEMM, Anorganisch-chemisches Institut der Universität, Hindenburgplatz 55, Münster Westf. (Federal Republic of Western Germany)  
Sir ALEXANDER TODD, Chemical Laboratory of the University, Lensfield Road, Cambridge (GB)

#### Six Presidents of Sections

R. BELCHER, Department of Chemistry, The University of Birmingham, Edgbaston, Birmingham 15 (Analytical Chemistry Section)  
J. BUSHILL, The Laboratories, 149 Hammersmith Road, London W.14 (Applied Chemistry Section)  
H. J. EMELEUS, F.R.S. Chemical Laboratory, Lensfield Road, Cambridge (GB) (Inorganic Chemistry Section)  
H. ERDTMAN, Royal Institute of Technology, Stockholm 70 (Suède) (Organic Chemistry Section)  
E. J. KING, Postgraduate Medical School, Ducane Road, London W.12 (GB) (Biological Chemistry Section)  
W. KUHN, Physikalisch-chemische Anstalt der Universität, Klingelbergstrasse 80, Bâle (Suisse) (Physical Chemistry Section)

### Members

B. A. KASANSKI, Académicien, Section de Chimie de l'Académie des Sciences, Moscou (URSS)  
M. LORA-TAMAYO, Director, Instituto Alonso Barba de Química, Serrano 119, Madrid (Espagne)  
S. MIZUSHIMA, Department of Chemistry, Faculty of Science, Tokyo University, Hongo-Tokyo (Japon)  
T. URBANSKI, Polytechnic School, 75, Koszykowa Street, Varsovie (Pologne)  
M. LETORT, 35, rue St-Dominique, Paris-7<sup>e</sup> (France)  
D. MAROTTA, Istituto superiore di sanità, Roma (Italie)  
P. E. VERKADE, Ary Schefferstraat 217, La Haye (Pays-Bas)  
E. WICHERS, National Bureau of Standards, Washington 25 (DC, USA), Chief of the Division of Chemistry

## Secretary General

R. MORF, Bâle 13 (Suisse)

## Treasurer

Sir E. CHARLES DODDS, Courtauld Institute of Biochemistry, The Middlesex Hospital Medical School, London W.1 (GB)

## Past Presidents

A. TISELIUS, Biokemiska Institutionen, University of Uppsala (Suède)

A. STOLL, Prof. c/o Sandoz Ltd., Bâle 13 (Suisse)

## SECTION COMMITTEES

### Physical Chemistry Section

1957-1961	President	W. KUHN, Prof., Institut de Chimie physique, Klingelbergstr. 80, Bâle (Suisse)
1957-1961	Vice-President	G. M. SCHWAB, Physikalisch-Chemisches Institut, Sophienstr. 11, Munich (Germany)
1953-1961	Secrétaire	M. POURBAIX, Dr, Université libre, Département de Physicochimie appliquée, 50, av. F.-D.-Roosevelt, Bruxelles (Belgique)
1957-1961	Members	R. P. BELL, F.R.S., University Reader in Physical Chemistry, Balliol College, Oxford (GB)
1957-1961		J. A. CHRISTIANSEN, Prof., Blegdamsvej 19, Copenhagen K (Denmark)
1959-1961		W. JOST, Prof., Burgerstr. 50, Göttingen (Federal Republic of Western Germany)
1959-1961		W. H. MELVILLE, Prof., Charles House, 5-11 Regent Street, London S.W.1 (GB)
1959-1961		M. PRETTE, Lyon-7 <sup>e</sup> (France)
1955-1961		H. W. THOMPSON, Dr. F.R.S. Department of Physical Chemistry, St. John's College, Oxford (GB)
1959-1961		E. WICHERS, Dr., National Bureau of Standards, Washington 25 (DC, USA)
1953-1961		F. D. ROSSINI, Prof., Petroleum Research Laboratory, Carnegie Institute of Technology, Pittsburgh 13, Penna./USA

### Section of Inorganic Chemistry

1959-1963	President	H. J. EMELEUS, F.R.S., Chemical Laboratory, Lensfield Road, Cambridge (GB)
1959-1963	Vice-President	J. H. DE BOER, Prof., Centraal Laboratorium der Staatmijnen, Geleen (Pays-Bas)
1959-1963	Secretary	V. GUTMAN, Prof., Wien VI
1959-1963	Members	T. BATUECAS, Prof., Universidad Santiago de Compostela (Espagne)
1951-		G. CHAUDRON, Prof., Membre de l'Institut, Ecole nationale supérieure de Chimie, 11, rue Pierre-Curie, Paris-5 <sup>e</sup> (France)



1959-1963	C. W. CORRENS, Prof., Sedimentpetrographisches Institut, Universität, Lotzestr. 13, Göttingen (République fédérale allemande)
1959-1963	K. A. JENSEN, Prof., Université, 5 Østervoldgade, Copenhagen (Denmark)
1959-1963	L. BREWER, Dr., Department of Chemistry, University of California, Berkeley 4 (Cal., USA)
1959-1963	I. V. TANANAIIEV, Prof. (URSS)
1959-1963	E. WIBERG, Prof., Institut für anorganische Chemie, Meiserstr. 1, München (République fédérale allemande)

### Section of Organic Chemistry

1959-1963	President	H. ERDTMAN, Prof., Royal Institute of Technology, Stockholm 70 (Suède)
1959-1963		A. C. COPE, Prof., Laboratory of Organic Chemistry, Massachusetts Institute of Technology, Cambridge (Mass., USA)
1959-1963		L. MARION, Prof., National Research Council, Ottawa (Canada)
1957-1961		E. OCHIAI, Prof., Pharmaceutical Institute, Medical Faculty, University of Tokyo, Hongo-Tokyo (Japan)
1957-1961		C. P. PREVOST, Prof., Faculté des Sciences, 1, rue Victor-Cousin, Paris-5 <sup>e</sup> (France)
1957-1961		A. QUILICO, Prof. Dr., Institut de chimie générale et analytique de l'Ecole polytechnique, piazza Leonardo da Vinci 32, Milan (Italie)
1957-1961		C. SCHOEPE, Prof., Institut für organische Chemie der Techn. Hochschule, Schlossgartenstr. 2, Darmstadt (République fédérale allemande)
1959-1963		M. M. SHEMIKINE (URSS)

Prof. COPE perhaps to be replaced by Prof. BARTLETT.

### Section of Biological Chemistry

1959-1963	President	E. J. KING, Prof., Postgraduate Medical School, Ducane Road, London W. 12 (GB)
1958-1961	Vice-President	F. LYNEN, Prof., Dir. des Max-Planck-Institutes für Zollchemie, Kraepelinstr. 2, Munich (République fédérale allemande)
1959-1963	Secretary	C. E. DALGLIESH, Miles Laboratories Ltd., Nuffield House, 41 Piccadilly, London W.1 (GB)
1958-1961	Member ex officio	W. KLYNE, Prof., Postgraduate Medical School, Ducane Road, London W.12 (GB)
1960-1963	Member ex officio	M. FREEMAN, Lt. Col., c/o Surgeon General Pentagon, Washington (DC, USA)
1960-1963	Member ex officio	K. BAILEY, Department of Biochemistry, University of Cambridge (GB)
1957-1960	Member	R. H. S. THOMPSON, Prof., Department of Clinical Pathology, Guy's Hospital Medical School, London S.E.1 (GB)

1960-1963	Member	V. OREKHOVICH (USSR)
1957-1960	Member	A. ROSSI-FANELLI, Prof., Istituto di Chimica biologica, Università di Roma (Italie)
1958-1961	Member	H. CHANTRENNE, Prof., Faculté des Sciences, Université libre, 1850, Chaussée de Wavre, Auderghem-Bruxelles (Belgique)
1958-1961	Member	P. BOULANGER, Prof., Laboratoire de chimie biologique, Faculté de médecine et de pharmacie, Cité Hospitalière, Lille (France)

### Section of Analytical Chemistry

1957-1961	President	R. BELCHER, Prof., Department of Chemistry, The University, Edgbaston, Birmingham 15 (GB)
1957-1961	Vice-President	G. CHARLOT, Prof., Ecole supérieure de Physique et Chimie industrielles, 10, rue Vauquelin, Paris-5 <sup>e</sup> (France)
1959-	Secretary	L. GORDON, Dr. Case Inst. of Technology, University Circle, Cleveland 6 / Ohio (USA)
1959-		ALIMARIN, Prof.
1957-1961	Members	F. FEIGL, Prof., Universidade do Rio de Janeiro, Avenida Pasteur 404, Rio de Janeiro (Brazil)
1957-1961		G. KORTÜM, Prof., Dr., Wilhelmstr. 56, Tübingen (République fédérale allemande)
1957-1961		A. J. RINGBOM, Prof., Abo Akademi, Domkyrkotorget 7, Abo (Finlande)
1957-1961		M. A. A. SMALES, Atomic Energy Research Establishment, Harwell, Didcot, Berkshire (GB)
1957-1961		T. TAKAHASHI, Prof., University of Tokyo, Yayoi cho, Chiba City (Japan)
1957-1961		P. W. WEST, Prof., Department of Chemistry, Louisiana State College, Baton Rouge 3 / Louis. (USA)

### Applied Chemistry Section

1959-1961	President	Dr. J. H. BUSHILL, The Laboratories, 149 Hammer-smith Road, London W.14 (GB)
1959-1961	Vice-President	Prof. R. TRUHAUT, Faculté de Pharmacie, 4, avenue de l'Observatoire, Paris-6 <sup>e</sup> (France)
1959-1961	Secretary	H. J. BUNKER, 28 Radnor Road, Twickenham, Middlesex (GB)
	Members	H. L. HALLER, Dr., Agricultural Research Service, U.S. Department of Agriculture, Washington 25 (DC, USA)
		R. NICOLAYSEN, Prof., Institut for Ernæringsforskning, Universitetet, Blindern-Oslo (Norway)
		H. LUNDIN, Prof., Royal Institute of Technology, Division of Food Chemistry, Stockholm 70 (Suède)
		H. STURM, Dr., c/o Steinfels S.A., Heinrichstr. 255, Zurich (Suisse)
1959-1961		W. GALLAY, Dr., the E.B. Eddy Co., Hull (Ontario, Canada)
1959-1961		L. A. JORDAN, Dr., The Paint Research Station, Waldegrave Road, Teddington, Middlesex (GB)

## **Pulp, Paper and Board Division Committee**

Chairman	Dr. W. GALLAY, The E.B. Eddy Company, Hull (P.Q., Canada)
Vice-Chairman	Prof. W. JENSEN, Finnish Pulp and Paper Research Institute, Helsinki (Finland)
Hon. Secretary	Dr. KYLE WARD, Jr., Institute of Paper Chemistry, Appleton (Wisc., USA)
	Dr. H. F. RANCE, Wiggins-Teape Group Research Organization, Butler's Court, Beaconsfield (Bucks., GB)
	Miss KARIN WILSON, Cellulose Research Laboratory, Uddeholms Aktiebolag, Skoghallsverken, Uddeholm (Suède)
	Prof. G. JAYME, Institute for Cellulose Chemistry, Alexandrastr. 24, Darmstadt (Federal Republic of Western Germany)
	Prof. J. P. VILARS, Société Nouvelle de Papeterie, Corbeil-Essonnes, Seine-et-Oise (France)
	Prof. G. CENTOLA, Director, Stazione sperimentale per la Cellulosa, Carta e Fibre Tessili vegetali ed artificiali, Piazza Leonardo da Vinci 26, Milan (Italie)

## **APPENDICES**

### **Adoption of New Member Countries**

On the unanimous recommendation of the Executive Committee and the Bureau, the Council unanimously approved the admission of Argentina and of Bulgaria, within Category C.

By a split vote the Bureau recommended to the Council the admission of the Republic of China (Taiwan) in Category B. It was intimated from the floor that some delegates would vote against the admission of the Republic of China owing to the fact that only the Academy of Science of Pekin could be regarded as the official representative of Chinese chemists. This view was supported by various delegates. Other members moved to approve the admission of the Republic of China, as it was an application by an appropriate body of chemists which had fulfilled all the demands of the Union's statutes. A motion to hold a secret ballot in writing having been approved, a written vote was taken; a commission consisting of KASANSKI (chairman), NOYES and MORF opened the ballot papers. The results were:

72 votes in favour of admission  
23 votes against  
18 invalid votes  
9 abstention votes

The representatives of the newly adopted countries were invited to come to the meeting; the representative of the Republic of China expressed thanks to the Union for the admission of his country. (See Appendix.)

## Resolution No. 1

The Executive Committee, being aware of the hardship which has been caused by limiting travel allowances to \$400 as ceiling and in the desire to give Commissions the possibility of electing the best scientists, regardless of the country from which they come and irrespective of the expense involved, resolved:

- (a) to remove the ceiling of \$400;
- (b) to pay as large a part of the tourist return air fare as the Executive Committee may decide is warranted by the Union's finances;
- (c) to pay all subsistence allowances at a rate fixed by the Executive Committee;
- (d) to request the Finance Committee to make proposals for provision of the necessary finance for the sums mentioned above.

## Resolution No. 2

At the request of the Honorary Treasurer the Executive Committee unanimously decided that it was essential to have appropriate reserves in order to safeguard the Union's activities in case of emergency.

## IUPAC FINANCE COMMITTEE

### *Report of the Finance Committee to the Bureau and to the Council of IUPAC, 26 August, 1959*

The Finance Committee appointed by the Council on 26 August 1959 met on that day under the chairmanship of Professor A. TISELIUS. The Committee, after discussing thoroughly the problems laid down in its terms of reference, reported as follows:

(1) It is *recommended* that, notwithstanding the economies made previously by the Union, further vigorous attempts at economy should be made as follows:

- (a) Cheaper air travel might be provided by arrangements with IATA and its companies;
- (b) the period of the activity of new commissions should be limited to a maximum of 4 years. Only those Commissions should continue after the 1961 Conference which provide sufficient evidence for their existence. The evidence should be given in writing by Section Presidents to the Executive Committee at least 4 months before the 1961 Conference;
- (c) Sections should be asked to reduce the number of their Commissions to an absolute minimum. This reduction should become effective at the end of the 1961 Conference.

(2) The question whether the maximum membership of Commissions should be reduced from 10 (as hitherto) to 8 (in future) was discussed at length. With 9 votes in favour and 5 votes against it was *recommended* that the maximum membership of each Commission be reduced to 8.



Nomenclature Commissions, the Atomic Weight Commission and Commissions on Physico-Chemical Symbols as well as Data are excluded from these recommendations.

(3) The Committee was of the opinion that an essential part of any scheme to enlarge the income of the Union would be a substantial increase in the annual subscriptions of member countries. It therefore *recommends* unanimously that the Council should consider the following scheme involving an increase in the number of categories in the Union.

Category C	annual contribution Dollars	450
Category B1	annual contribution Dollars	800
Category B2	annual contribution Dollars	1 600
Category A1	annual contribution Dollars	2 600
Category A2	annual contribution Dollars	5 000
Category A3	annual contribution Dollars	10 000

The number of votes should be remained as hitherto.

(4) The Committee *recommends* further that details of the above proposals together with an indication of the Category which seems appropriate to the country in question be forwarded to the National Adhering Body in each country for consideration. It is *recommended* that the Honorary Treasurer be entitled to allocate an appropriate sum for a careful study of the financial problems of the Union. In this way a document describing the Union's activities and the need for increased support could be prepared and the National Committees would thereby be provided with strong arguments which they can, if necessary, use to convince their Governments of the need to increase the annual contributions. The Honorary Treasurer's study should include various schemes designed to relate the annual contributions to the turn-over of the chemical industry of a country, the number of its registered chemists, and the population, and should include also comparison with ICSU and UNESCO schemes. In some cases it might be useful to provide National Committees also with the exact amounts of money paid by the Union for the Titular Members from each country in a recent stated period. Each National Adhering Body (or National Committee) should be asked to transmit its views to the Bureau not later than 31 March 1960, so that the new scheme—if acceptable—could be brought into operation by 1961 at the latest. The Executive Committee must arrange for appropriate charges in Statutes and Rules.

(5) It is *recommended* that the new IUPAC Journal should be distributed in two ways:

- (a) an ordinary subscription which shall include an amount for the benefit of the Unions Treasury;
- (b) an extra subscription from industrial firms.

(6) Within the Committee different opinions were expressed on the desirability and efficiency of an appeal to industry for financial help. In any case, if such an appeal is made, this should be done through the National Committees. If money is to be sought from industry, it might help if the Union could offer some advantage to firms which subscribe. For example, subscription to the IUPAC Journal at the higher rate might entitle the subscriber to the privilege of receiving advanced information about all IUPAC functions and also receiving appropriate invitations.

Other methods which have been used successfully to raise funds for scientific purposes in various countries should also be considered for example, subscription by 7-year covenant.

## COMITÉ DES FINANCES DE L'IUPAC

### *Rapport du Comité des Finances au Bureau et au Conseil de l'IUPAC, 26.8.1959*

Le Comité des Finances, désigné le 26 août 1959 par le Conseil, s'est réuni le même jour sous la présidence du Professeur A. TISELIUS. Le Comité a émis les recommandations suivantes, après examen des problèmes posés:

1<sup>o</sup> Des efforts d'économie extrêmement sérieux sont à faire, en plus de ceux déjà pratiqués par l'Union:

- a) Des accords sont à envisager avec les compagnies aériennes pour obtenir de meilleures conditions de transport pour les membres;
- b) l'activité des nouvelles commissions devrait être limitée à une période maximum de quatre ans. Seules, seraient maintenues en activité après la Conférence de 1961, les commissions dont l'intérêt serait certain. Il appartiendrait aux présidents de Section d'établir l'intérêt de ce maintien par lettre adressée au Comité exécutif au moins quatre mois avant la Conférence de 1961;
- c) il serait demandé aux Sections de réduire au minimum le nombre de leurs membres. Cette réduction devrait être effective à la fin de la Conférence de 1961.

2<sup>o</sup> La réduction du nombre des membres titulaires des Commissions (ramenés de 10 dans le présent à 8 dans le futur) a été longuement discutée. Par 9 voix favorables contre 5, il est recommandé de ramener à 8 le nombre des membres de chaque Division et Commission. Toutefois, les Commissions de Nomenclature, de poids atomiques, celles des symboles physico-chimiques et des données-étalons ne sont pas comprises dans les présentes recommandations.

3<sup>o</sup> Le Comité considère qu'un moyen essentiel d'élargir les possibilités de l'Union serait d'augmenter de façon sensible les cotisations annuelles des pays membres. Aussi est-ce à l'unanimité qu'il recommande au Conseil de considérer une proposition qui tendrait à augmenter le nombre des catégories de membres de l'Union:

Catégorie C	Cotisation annuelle	\$	450
Catégorie B1	Cotisation annuelle	\$	800
Catégorie B2	Cotisation annuelle	\$	1 600
Catégorie A1	Cotisation annuelle	\$	2 600
Catégorie A2	Cotisation annuelle	\$	5 000
Catégorie A3	Cotisation annuelle	\$	10 000

Le nombre de voix restant inchangé.

4<sup>o</sup> Le Comité recommande, en outre, que les propositions précédentes soient présentées pour examen à l'organisme adhérent de chaque pays, assorties de l'indication de la catégorie qui paraîtrait le mieux appropriée à ce pays. Il est recommandé d'autoriser le Trésorier de l'Union à affecter une certaine somme à l'étude minutieuse des problèmes financiers de l'Union. Dans cette voie, les Comités nationaux devraient être informés des arguments de valeur, propres, si nécessaire, à convaincre leurs Gouvernements du besoin d'augmenter leurs contributions annuelles. L'étude du Trésorier devrait présenter diverses possibilités de contributions, annuelles, en fonction de l'importance des industries chimiques de chaque pays, du

nombre de chimistes qu'il compte, de sa population et aussi de sa position à l'ICSU et à l'UNESCO. Dans quelques cas, il pourrait être utile de communiquer aux Comités nationaux, le montant des sommes allouées par l'Union aux membres titulaires de chaque pays, pendant une période récente donnée. Chaque organisme adhérent ou Comité national serait invité à faire connaître son point de vue au Bureau de l'Union avant le 31 mars 1960, de sorte que le nouveau plan, s'il est acceptable, puisse entrer en application dès 1961. Il serait, en outre, nécessaire que le Comité exécutif ait pu réaliser les modifications adéquates des statuts et règles de l'Union.

5° Il est recommandé que le nouveau Journal IUPAC soit diffusé de deux manières:

- a) par souscription normale, assurant à l'Union un revenu par abonnement annuel;
- b) par souscription extraordinaire par les sociétés industrielles.

6° Différentes opinions furent exprimées par le Comité sur l'opportunité et l'efficacité d'un appel à une aide financière auprès de l'industrie chimique. Toutefois, dans l'éventualité où cet appel serait fait, il devrait intervenir par l'intermédiaire des Comités nationaux. L'obtention de ressources de la part de l'industrie pourrait être facilitée par l'offre de quelques avantages aux souscripteurs industriels. Par exemple, la souscription au Journal IUPAC au taux le plus élevé, conférerait au souscripteur le droit d'être informé à l'avance sur les activités de l'IUPAC et d'être invité à participer aux dites activités. D'autres méthodes pourraient être mises à l'étude, en s'inspirant de celles qui ont permis de recueillir des fonds pour les besoins de la recherche scientifique dans divers pays, par exemple celle des conventions de souscriptions pour 7 ans.

#### **Remarks of Dr. H. W. THOMPSON regarding publications**

At the request of the President, Dr. H. W. THOMPSON, Chairman of the Publication Committee, presented a report on its activities during the past two years, and he also outlined new proposals for a IUPAC Journal. The general policy adopted by the Committee has been laid down in recent Bulletins, and the list of publications already made is given in Bulletin No. 8. Dr. THOMPSON emphasises that the sales and distribution of some of these articles, including the nomenclature reports had already been rather greater than had been expected, and at a smaller cost to the Union than previously, which was an encouraging start. Some difficulties had arisen with regard to symposia, owing to insufficient realisation of the new IUPAC policy and also since in some cases commitments had been made with national publishers. Dr. THOMPSON explained the new proposals regarding symposia, set out in Bulletin No. 9, page 15, which seemed sufficient not only to meet all the IUPAC requirements, but also to satisfy the wishes of some national organisations through a joint publishing arrangement between Butterworths and any national publisher outside the British Commonwealth.

Dr. THOMPSON then put forward the view of the Publication Committee that considerable advantages might follow from the creation of a IUPAC Journal. This would increase the prestige of the UNION, widen the distribution of its decision and reports, collect together the smaller Commission reports which often remain little known, and also lead to a reduction in the sales price of separate articles, nomenclature rules or other documents. Separate reprints of all articles would be available as at present, and all



the financial risk would be taken by the commercial publisher. Further, if the Union wishes to add on its own behalf a small sum to the sales price, it might provide a substantial income directly to the Union. Translation rights into all languages would be provided on similar terms to those operating at present. An editor would be necessary and also it might be desirable to appoint a number of distinguished scientists from different countries to join the Publication Committee in forming an editorial advisory board. Butterworths were willing to co-operate along their lines, and indeed favoured the proposal.

Dr. THOMPSON foresaw some small technical problems which might arise, and some matters of principle would need to be decided by the Editorial Board, but he felt that on balance of evidence there was a strong case for attempting to produce the Journal. The question of the inclusion in it of the *Comptes Rendus* and *Bulletin* would have to be decided after further discussion.

## RESOLUTION

### *Collaboration between IUB and IUPAC*

After receiving the report from Sir CHARLES, who attended the Co-ordinating Committee meeting in Starnberg on 24 August, 1959, and after discussing the problem of collaboration and co-ordination with IUB the Executive Committee reaffirmed its intentions:

- (a) to maintain the Section of Biological Chemistry in full activity;
- (b) to reconfirm the Minutes of the Washington and Moscow meetings;
- (c) to continue to organize congresses and symposia concerned with problems of biological chemistry whenever these are primarily chemical rather than biological in emphasis, or whenever the subjects of such congresses and symposia are of direct interest to the various Commissions of IUPAC;
- (d) to avoid competition and rivalry with IUB Congresses.

In summary the attitude of our Committee is expressed as being to further, in the future as in the past, the interests of Biological Chemistry.



## RÉSOLUTION

### *Collaboration entre l'IUB et l'IUPAC*

Après avoir reçu le rapport de Sir CHARLES qui a assisté à la réunion du Comité de Coordination à Starnberg le 24 août 1959, et après avoir discuté du problème de la collaboration et de la coordination avec l'IUB, le Comité exécutif a réaffirmé son intention:

- a) de maintenir la Section de Chimie biologique en pleine activité;
- b) de confirmer à nouveau les procès-verbaux de Washington et Moscou;
- c) de continuer à organiser des Congrès et Symposia traitant des problèmes de chimie biologique lorsqu'il s'agit avant tout de questions chimiques plutôt que biologiques ou lorsque les sujets traités au cours de ces congrès et symposia intéressent directement les différentes Commissions de l'IUPAC;
- d) d'éviter toute compétition ou rivalité avec les Congrès de l'IUB.

En résumé, l'attitude de notre Comité est de sauvegarder, à l'avenir comme dans le passé, les intérêts de la Chimie biologique.

### **Short Comment in the Conference of International Union of Pure and Applied Chemistry held in Munich**

J. C. HUANG

It is most gratifying to know that the Chinese Chemical Society of the Republic of China (Taiwan) has now been admitted to the International Union of Pure and Applied Chemistry. We feel greatly honoured to be among the distinguished Chemical Societies of the world, and I find it a great privilege to sit with chemists of great renown from the four corners of the world. Your International Union, I must say ours now, has made invaluable contributions to the advancement of chemistry, and to co-ordination and co-operation of scientific activities between the member countries. The Chinese Chemical Society will attempt with all its power to co-operate in the attainment of these objects.

The Chinese Chemical Society has at present a total membership of 2338 of college or university standing. This is more than 2 per 10000 of the population, an impressive figure among the Asian countries. The Society publishes a semi-annual journal in English containing original research papers in pure chemistry, and a quarterly journal in Chinese pertaining to applied chemistry. In Taiwan, we count 19 educational and industrial institutions which engage full-time chemists concentrating on pure and applied chemical research. Among them may be mentioned the National Taiwan University, the United Industrial Research Institute, The Sugar Experiment Station of the Taiwan Sugar Corporation, which have all contributed original pure or applied research of recognized standing. For instance, our studies of flavonoids, the molecular orbital theory of hyperconjugation, and thermodynamic properties of polyvalent electrolytes are all worth mentioning.

Chemical industry also stands foremost among the industries of Taiwan. Of special significance are the Hsin-ying Yeast Factory, the largest of its kind in the world, having a daily capacity of 40 metric tons of dried yeast, the Urea Factory with 100 metric tons daily capacity using the Inventa

process, the first of its kind; and one of the largest hard-board and soft-board factories using bagasse as the raw material. Our chemists have been very bold in these ventures, and they are lucky to have succeeded.

However, we still have much to learn. By participating in the International Union we can expect to benefit greatly from the pool of knowledge of distinguished chemists of the progressive countries. Permit me, Sir, to express again our appreciation of the privilege of membership of the International Union, and my thanks to all who have assisted me, and who have given us encouragement and support.

## IUPAC

### Symposium on "The Chemistry of Natural Products"

Fourth Quarterly Report of Symposium Organizing Committee  
(1.4.59 to 30.6.59)

Considerable progress in the organization of the Symposium has been made during the last quarter. Details of the programme and general organization were established at a meeting of the Symposium Organizing Committee in person on 29.6.59.

#### (3) *Scientific Programme*

Acceptances for all special lectures are now complete. They are listed below under the conference centre in which the lecture will be given.

*Melbourne*—Opening Ceremony; address by Professor A. STOLL (Basle)

Section H Symposium Lecturer: Professor R. B. WOODWARD (Harvard)  
Section Lecturers: Professor H. BROCKMANN (Göttingen),  
Professor T.R. GOVINDACHARI (Madras)

Section P Symposium Lecturer: Dr. H. W. THOMPSON (Oxford)  
Section Lecturers: Professor C. DJERASSI (Stanford),  
Dr. A. McL. MATHIESON (Melbourne)  
Special Lecture: Dr. J. R. PRICE (Melbourne)

*Canberra*—Presidential Lecture: Professor Sir ALEXANDER TODD (Cambridge)

*Sydney*—Section A; Symposium Lecturer: Professor F. SORM (Prague)  
Section Lecturers: Professor D. H. R. BARTON (London),  
Professor N. A. SØRENSEN (Trondheim)

Section B Symposium Lecturer: Professor R. KUHN (Heidelberg)  
Section Lecturers: Dr. E. LEDERER (Paris),  
Dr. J. W. CORNFORTH (London)

Other distinguished overseas chemists have been invited to give introductory papers to some of the sessions.

Invitations to present papers to the scientific sessions have been issued to a number of overseas natural product scientists.

#### (4) *Excursions*

Pre-conference excursions will be available for:

- (a) Central Australia for those visitors entering Australia at Darwin;
- (b) Snowy Mountains Hydroelectric Authority;
- (c) Latrobe Valley, Victoria.

In each of the three conference centres during the Symposium numerous sight-seeing and technical excursions will be offered.

After the Symposium there will be three separate excursions to rain-forest areas in New Guinea and Queensland. These excursions will be of four or five days' duration and will include much of unique scenic and phytochemical interest. The excursion to New Guinea is strictly limited to a small number and will be offered to special lecturers and other distinguished contributors by invitation only. A second excursion to the Northern Queensland rain-forest and the Barrier Reef will be open to 50 members. A third excursion to the Southern Queensland rain-forest and to Hayman Island and the outer Barrier Reef will be available to any number.

#### (6) *Travel and Accommodation*

The Ansett-ANA Travel Service has been appointed the authorized Symposium travel agency and will deal with all applications for overseas and internal travel and hotel accommodation. This agency has already made appropriate reservations for the estimated Symposium membership. It will also be responsible for providing local transport for excursions and other events.

University college accommodation at tariffs substantially lower than the hotels will be offered in both Sydney and Melbourne.

A. L. G. REES,  
Chairman and Convener

### **SUMMARY REPORT OF INORGANIC SECTION**

The Sections Committee was re-elected as follows:

President	EMELEUS, Prof., GB
Vicepresident	J. H. DE BOER, Prof., Holland
Secretary	V. GUTMAN, Prof., Wien VI
Members	T. BATUECAS, Prof., Spain
	G. CHAUDRON, Prof., France
	C. W. CORRENS, Prof., Germany
	K. A. JENSEN, Prof., Denmark
	L. BREWER, Dr., USA
	I. V. TANANAIEV, Prof., URSS
	E. WIBERG, Prof., Germany

#### **Commission on Inorganic Nomenclature—New organization:**

President	K. A. JENSEN
Vicepresident	H. REMY
Secretaries	J. CHATT
	F. GALLAIS

Members	A. ÖLANDER E. J. CRANE W. FEITKNECHT L. MALATESTA G. H. CHEESMAN J. BÈNARD
Associate Members	W. C. Fernelius W. KLEMM H. L. SCHLESINGER A. KOTOWSKI
Observers	YAMASAKI S. VEIBEL

The Commission held 5 sessions, one joint with Commission on Organic Nomenclature. A new programme of study was initiated on the Nomenclature of Hydrides, Metallorganic compounds and Phosphorus compounds. No new tentative rules will be submitted at this Conference.

Prof. JENSEN will submit budgets for 1960–61, before the end of the Conference.

#### **Commission on Atomic Weights—New organization:**

President	T. BATUECAS
Vicepresident	A. ÖLANDER
Members	V. CAGLIOTI H. V. BRISCOE J. MATTAUCH CAMERON, USA
Associate Members	A. O. NIER M. PEREY E. WICHERS J. KREPELKA

The principle action taken was to recommend the adoption of a new scale of atomic weights based on 12 as the assigned relative mass of the atom of carbon isotope 12. This recommendation is subject to adoption of the same scale by the Union of Physics, it being agreed that the new scale will replace the chemical and physical scales now in use.

The Commission will not revise any atomic weights this year but will publish a revised table in 1961 if the proposed carbon-12 scale is adopted.

#### **Commission on High Temperatures:**

The Commission did not convene at Munich. No organisational changes except that election of a member in place of S. ZERFOSS, deceased, is in progress by correspondence.

The Commission will discuss with the Publications Committee the matter of publishing the bibliographic information that has thus far been distributed informally.

A symposium is planned in connection with the 1961 Conference, jointly with the Sub-commission on Experimental Thermodynamics, and is to take the place of the symposium originally planned for Munich.

Submitted by the President of the Inorganic Section



## SECTION OF ORGANIC CHEMISTRY

(a) The composition of the Section Committee has been changed as follows:

H. ERDTMAN, Prof., Sweden, President  
A. C. COPE, Prof., USA  
L. MARION, Prof., Canada  
E. OCHIAI, Prof., Japan  
CH. PREVOST, Prof., France  
A. QUILICO, Prof. Dr., Italy  
C. SCHOEPE, Prof., Germany  
M. M. SHEMIKINE, URSS

(b) The proposal from the Czechoslovakian Academy of Science to hold an International Symposium on the Chemistry of Natural Products at Prague in 1962 under the sponsorship of the Section was accepted.

(c) A proposal from the Società Italiana di Scienze Farmaceutiche to hold a Symposium on the Chemistry of Medicinal Drugs in 1962 was accepted in principal.

(d) The Commission on the Nomenclature of Organic Chemistry met during the week before the Conference at Bad Schachen and during the Munich Conference. Its main task consisted in the preparation of section C of the new set of Nomenclatures of Organic Chemistry, dealing with the chemistry of compounds with simple, multiple and diverse functions. (A book containing the sections A and B, dealing with hydrocarbons and fundamental heterocycles, has been published about a year ago.) Great progress was made with this work. A difficult point was the choice of the principle function and of the principle chain in compounds with diverse functions. This problem has now been settled in a very satisfactory way.

The Commission has in the course of years prepared a set of rules for the application of the "a"-nomenclature to open chains, which is now becoming to be in a very good form.

(e) The Commission on Codification, Ciphering and Punched Card Techniques met also at Bad Schachen in the week before the Conference and at Munich.

The international Notation System, edited in a tentative version by the Commission about two years ago, has been greatly improved and simplified, without application of fundamental changes. The Commission's report will now be published under the title "IUPAC System for Notation of Organic Compounds, 1960" issued by the Commission on Codification, Ciphering and Punched Card Techniques.

(f) The Commission on the Nomenclature of Organic Chemistry held a joint meeting with the Commission on the Nomenclature of Inorganic Chemistry in order to discuss the Nomenclature of organometallic compounds, of derivatives of phosphorus, sulfur, silicon, boron, etc.

(g) The Commission on the Nomenclature of Organic Chemistry held a joint meeting with the Commission on the Nomenclature of Biological Chemistry. In this meeting rules for Nomenclature in the B<sub>12</sub> field were definitively accepted.

Submitted by P. VERKADE

## COMMISSION ON CHEMICAL THERMODYNAMICS

### Report on the 1959 Conference and Symposium

This Commission held three meetings, with 100 percent attendance, on August 28, 1959: one from 9.00 to 11.45 a.m., one from 2.40 to 3.30 p.m., and a third meeting, jointly with the IUPAC Commission on Physicochemical Symbols and Terminology, from 11.45 a.m. to 12.30 p.m. At these meetings, the following members were present:

FREDERICK D. ROSSINI (USA), President  
KLAUS SCHÄFER (Germany), Secretary  
J. COOPS (Netherlands)  
D. M. NEWITT (Great Britain)  
K. S. PITZER (USA)  
H. A. SKINNER (Great Britain)  
B. VODAR (France)  
GUY WADDINGTON (USA)

No changes in membership or officers of the Commission were made, as K. SCHÄFER was renominated to be a titular member for a second 4-year term, to 1963, continuing as Secretary.

The Bulletin of Chemical Thermodynamics, edited by H. A. SKINNER, G. WADDINGTON, and K. SCHÄFER, has continued as a most successful venture to bring the thermodynamicists and thermochemists of many countries of the world closer together. The 1959 issue of the Bulletin consisted of 105 pages, was printed in 700 copies, and was distributed to approximately 600 scientists throughout the world.

The Subcommission on Experimental Thermochemistry has been working for several years on the second volume of the book "Experimental Thermochemistry", which is designed to bring into one place the latest ideas, methods, and procedures for experimental thermochemistry. Volume I had been edited by FREDERICK D. ROSSINI. Volume II is under the editorship of H. A. SKINNER, who has received copy from most of the authors of this co-operative volume, which is planned to appear late in 1960.

The Commission received a report on the Symposium on Thermodynamics which was held on August 20 to 25, 1959, at Fritzens-Wattens, near Innsbruck, Austria, under the joint sponsorship of the Deutsche Bunsen-Gesellschaft für Physikalische Chemie and the International Union of Pure and Applied Chemistry, the latter through its Commission on Chemical Thermodynamics, the Subcommission on Experimental Thermochemistry, and the Subcommission on Experimental Thermodynamics. At this Symposium, over 50 papers were presented, the discussion was lively, and great benefit was brought to the 135 participants of the Symposium who came from many different countries. The Symposium was under the general direction of Prof. K. SCHÄFER, Secretary of the IUPAC Commission on Chemical Thermodynamics and also President of the Deutsche Bunsen-Gesellschaft für Physikalische Chemie, with the local arrangements being handled by Prof. E. CREMER, of the University of Innsbruck.

The Commission on Chemical Thermodynamics, with its Subcommission on Experimental Thermochemistry and its Subcommission on Experimental Thermodynamics, is planning two Symposia for 1961, to be held jointly with other organizations, as follows:

1. A Symposium, jointly with the IUPAC Commission on High Temperatures, to be held during the 1961 International Congress of Pure and

Applied Chemistry, at Montreal, Canada. This symposium will deal with thermodynamic properties at high temperatures.

2. A Symposium on Thermodynamics and Thermochemistry, jointly with the Calorimetry Conference of the USA, to be held immediately preceding the 1961 IUPAC Conference or immediately following the 1961 IUPAC Congress, at a place appropriately located not too far from Montreal.

The joint meeting of the IUPAC Commission on Chemical Thermodynamics with the IUPAC Commission on Physicochemical Symbols and Terminology was held for the purpose of considering the practical possibility of a uniform set of thermodynamic symbols that would be acceptable to both European and American workers in the field.

Submitted by F. D. ROSSINI and K. SCHÄFER

All the other reports (if available) will be reproduced in the *Comptes Rendus XX*.

### CALENDAR

#### *October*

6-9	International Symposium on High Temperature Technology (Stanford Research Institute, Box 734, Menlo Park/California-USA)	Asilomar (California-USA)
12-16	Symposium on Macromolecules (Dr. W. MAUSS, c/o Kalle & Co., Rheingaustrasse 25) Wiesbaden-Biebrich/Germany)	Wiesbaden (Germany)
17-25	International Trade Fair of the Plastics Industry 1959 ("Kunststoffe 1959")	Düsseldorf (Germany)
19	Symposium on Aging of Plastics (arranged by the IUPAC Plastics and High Polymers Division)	Düsseldorf
20-21	8th German Plastics Congress: "Deutsche Kunststoff-Tagung" (Arbeitsgemeinschaft Deutsche Kunststoff-Industrie, Haus der Chemie, Karlstrasse 21, Frankfurt-M/Germany)	Düsseldorf
-	6th International Congress of Therapeutics (Professor FONTAINE, President, Doyen de la Faculté de Strasbourg, Strasbourg/France)	Strasbourg (France)

The Symposium on Therapeutical Organic Chemistry scheduled for 1959 had to be postponed.

#### *December*

14-16	43rd Meeting IUPAC Executive Committee	Paris
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### 1960

<i>Spring</i>	Symposium on Macromolecules	Moscow
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#### *May*

16-20	Meeting of IUPAC Bureau	Leningrad
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#### *May-June*

30-4	IVth International Symposium on the Reactivity of Solids (Ir. G. VAN GIJN, Technische Hogeschool Eindhoven, Insulindelaan 2, Eindhoven/Netherlands)	Amsterdam (Netherlands)
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- July*
- 4-9 2nd International Congress of Catalysis Paris (France)  
(Professor EMSCHWILLER, Ecole supérieure de  
Physique et de Chimie, 10, rue Vauquelin,  
Paris-5<sup>e</sup>/France)
- 18-26 Tercentenary of the Royal Society (Dr. D. C. London (GB)  
MARTIN, Assistant Secretary, The Royal Society,  
Burlington House, Piccadilly, London W.1./GB)

- August*
- 14-19 \*3rd International European Congress on Clinical Edinburgh  
Chemistry (Dr. C. P. STEWART, Department of (Scotland)  
Clinical Chemistry, Royal Infirmary, Edinburgh/  
Scotland)
- 15-25 \*Symposium on the Chemistry of Natural Products Melbourne,  
(Dr. A. L. G. REES, CSIRO, Division of Canberra and  
Industrial Chemistry, Box 4331, GPO, Sydney  
Melbourne/Australia) (Australia)

### 1961

- August*
- 2-5 \*XXIst Conference of the International Union of Pure and Applied Chemistry (Dr. R. MORF, Secretary General, c/o Sandoz Ltd., Basle/  
Switzerland) Canada
- 6-12 \*XVIIIth International Congress of Pure and Applied Chemistry—physical chemistry  
including spectroscopy, analytical chemistry,  
industrial chemistry and symposia on organic  
chemistry (Professor LEO MARION, National  
Research Council, Ottawa 2/Canada) Canada
- 20-25 Gordon Research Conference, Inorganic Section New Hampton  
(New  
Hampshire,  
USA)
- August-September*
- 27-1 5th International Conference on Co-ordination Chemistry Detroit  
(Mich., USA)

- September*
- 3-8 National Meeting of the American Chemical Society Chicago  
(Ill., USA)

\*all these events are organized under direct sponsorship of IUPAC

### 1962

Symposium on Spectroscopy Japan  
Symposium on Natural Products Prague  
Symposium on Therapeutical Chemistry  
(organized either by our Italian Colleagues or  
by the Royal Society in London)



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**INTERNATIONAL UNION OF PURE  
AND APPLIED CHEMISTRY**

**INFORMATION BULLETIN  
NUMBER 10**

SECRETARY GENERAL:  
Dr. Rudolf Morf, Basle, Switzerland

Butterworths Scientific Publications • London  
December 1959





## INTRODUCTION

In 1957 it has been possible to draft the Comptes Rendus of the XIXth International Conference immediately after the end of the Paris Congress. It therefore was possible to report about the results of the Paris Conference in the Comptes Rendus XIX, already before the end of 1957.

This time, the reports of the XVIIth Congress and of the XXth Conference will be available only at the beginning of 1960. The necessity therefore arose to inform the adhering member countries and all those chemists, who did not have the privilege of being present at Munich personally, about the main results achieved by means of the Information Bulletin, issue No. 10 of which is intended for distribution before the New Year.

The following events must be mentioned and reported upon:

En 1957, il fut possible de rédiger immédiatement après la fin du Congrès de Paris les Comptes Rendus de la XIX<sup>e</sup> Conférence internationale de Chimie pure et appliquée. Nous pûmes donc rendre compte, déjà avant la fin de la même année, des résultats de la Conférence de Paris.

Cette fois, les rapports du XVII<sup>e</sup> Congrès et de la XX<sup>e</sup> Conférence ne seront disponibles qu'au début de 1960. C'est pourquoi, désirant informer aussitôt que possible tous les pays membres, ainsi que les chimistes qui n'ont pas eu le privilège de se rendre personnellement à Munich, sur les principaux résultats acquis, nous le ferons par l'intermédiaire du Bulletin d'Information, dont nous avons l'intention de publier le n° 10 avant le Nouvel-An.

Il doit être rapporté sur les réunions suivantes:

- (a) 3rd General Assembly of the ICSU-Abstracting Board, Constance, 1-4 July, 1959
- (b) Symposium on Chemical Thermodynamics, Wattens, 20-25 August, 1959
- (c) XXth Conference of the International Union of Pure and Applied Chemistry, Munich, 26-29 August, 1959
- (d) XVIIth International Congress of Pure and Applied Chemistry, Munich, 30 August-6 September, 1959
- (e) 4th Biennial Meeting of the European Molecular Spectroscopy Group, Bologna, 7-12 September, 1959
- (f) XXIIInd Meeting of the Bureau and XIth Meeting of the Executive Board of the International Council of Scientific Unions, The Hague, 25 September-3 October, 1959
- (g) Symposium on Macromolecules, Wiesbaden, 12-16 October, 1959
- (h) Symposium on Aging of Plastics, Düsseldorf, 19 October, 1959
- (i) Meeting of the Joint Commission on Applied Radioactivity, Paris, 26-27 October, 1959
- (j) 43rd Meeting of the IUPAC Executive Committee, Paris, 12-14 December, 1959

The Finance Committee presided over by A. TISELIUS, Past President of our Union, in the Munich meeting has stipulated (among others) that a document describing the Union's activities should be prepared, so that the National Committees would thereby be provided with strong arguments, which they can—if necessary—use to convince their Governments of the need to increase the annual contributions. The best and cheapest way to produce such a document or a pamphlet consists in printing it in the Information Bulletin.

Issue No. 10 subsequently begins with a reprint of a circular letter of President NOYES, addressed to all the Adhering Member Countries and followed by a short description telling about the activities of the Union: "IUPAC—What it is—What it does—How it does it—How it is supported."

This pamphlet is based on the version of a document distributed by the Division of Chemistry and Chemical Technology of the National Research Council in Washington.

Le Comité des Finances, présidé par A. TISELIUS, ancien Président de notre Union, a fait remarquer entre autres lors de la Conférence de Munich qu'une brochure décrivant les activités de l'Union devrait être préparée afin de fournir aux Comités nationaux des arguments frappants pour convaincre — si nécessaire — leur Gouvernement de la nécessité d'augmenter leur contribution annuelle. Le moyen le meilleur et le plus avantageux de répandre une telle brochure consiste à l'imprimer dans le Bulletin d'Information.

C'est pourquoi le n° 10 débute par une lettre circulaire adressée par le Président NOYES à tous les pays membres, suivie d'une courte description sur les activités de l'Union: «IUPAC—What it is—What it does—How it does it—How it is supported.»

Cette brochure est basée sur celle distribuée par la Division de Chimie et de Technologie chimique du National Research Council à Washington.

W. ALBERT NOYES, Jr.  
President

The President to all Adhering Member Countries

**Information and explanation regarding the need to increase the income of the Union of Pure and Applied Chemistry**

The present financial situation of the International Union of Pure and Applied Chemistry is sound, but only because of certain specific factors. One factor is the exercise of economy. Another is that all the administration and the accountancy is on an honorary basis and therefore without cost to the Union.

A third and important factor is that until recently most of the activities of the Union have been confined to Europe. Consequently the travel expenses have been small, aided by the fact that reimbursement of travelling expenses have been limited by a ceiling of \$400 a person per return journey.

However, the development of Chemistry urgently requires that the Union expand its activity on a truly international scale, and it is necessary that countries far away from Europe should be able to participate directly in the work of the Union.

Co-operation on a world-wide scale necessitates overcoming the difficulties of space, time and language. The choice of Titular Members of Committees and Commissions of the Union should no longer be limited by geographical considerations, by which hitherto we have been able to reduce the financial burden. It will no longer be possible to limit the reimbursement of travel to the \$400 ceiling per person. It will be absolutely necessary to reimburse all expenses for travel and subsistence and even then it is unfortunate that there will be no possibility of remuneration for the scientific work done for the Union.

If one considers only the actual cost for travel and subsistence for all Titular Members in an odd year (that is a year when there is a Conference and a Congress) this will amount to approximately \$200,000.

The income of the Union amounts to only some \$40,000 a year; the expenses for an odd year will be \$240,000, though for an even year they will be limited to \$40,000.

The foreseeable expenses for two years (an even year and an odd year) will be approximately \$280,000. The deficit to be envisaged is \$200,000 for the two years, so that we must find additional income amounting to approximately \$100,000 a year.

In view of this necessity and in an attempt to solve this problem the Council of the XXth Conference appointed a Finance Committee, presided over by Professor ARNE TISELIUS. This Committee has made very valuable proposals which are appended to this paper and are herewith submitted to the Adhering Member Countries for comment.

Member Countries are kindly requested to let us have their remarks on the best procedure for increasing the income of IUPAC.

signed by President W. A. NOYES



La version française de la lettre du Président est due à la plume du Prof. M. LETORT, membre de notre Comité exécutif:

### **Raisons de la nécessité d'augmenter le revenu de l'IUPAC**

Dans l'état actuel des choses les finances de l'Union sont saines surtout grâce à l'esprit d'économie de ses membres et au fait que l'administration est effectuée bénévolement et sans frais. Un autre facteur d'économie a été que l'activité de l'Union s'est principalement développée en Europe jusqu'ici, de sorte que les frais de voyage étaient modiques. Cependant le développement de la Chimie demande d'étendre l'activité de l'Union au globe tout entier, de manière que les pays éloignés de l'Europe puissent participer plus directement aux travaux de l'Union.

La coopération à l'échelle mondiale implique de combattre les difficultés dues à l'espace, au temps et à la différence des langues. Le choix des membres de l'Union ne doit plus être limité par des considérations de proximité géographique qui permettent de réduire les charges financières. Il n'est plus possible de limiter le remboursement pour voyage à 400 dollars par personne. Il est absolument nécessaire que l'on puisse rembourser les frais réels de transport et de subsistance, sans même parler de la rémunération de l'énorme travail scientifique qui est fait. Or, la simple considération des frais de voyage et de subsistance représente un budget de 200 000 dollars environ pour une année impaire (c'est-à-dire une année qui comporte une Conférence et un Congrès).

Les revenus actuels de l'Union étant de l'ordre de 40 000 dollars par an seulement, et les dépenses s'élevant à 240 000 dollars les années impaires et 40 000 dollars les années paires (soit une moyenne de 140 000 dollars), il reste à trouver 100 000 dollars par an.

Etant donné cette nécessité et afin de résoudre ce problème, un Comité des Finances présidé par le Prof. ARNE TISELIUS à Munich (1959) a fait un certain nombre de propositions qui sont soumises à l'opinion des pays membres.

## THE UNION - WHAT IT IS

The International Union of Pure and Applied Chemistry is a voluntary body whose chief purposes are to establish and promote cooperation between the Chemical Societies of the member countries and to coordinate their scientific and technical activities. The governing body of the Union, its Council, is composed of delegates appointed by national agencies concerned with fundamental and applied chemistry in the participating countries. These agencies, which represent in each country the chemical interests of that country (e.g., Comité National de la Chimie, under the aegis of the Académie des Sciences, France; British National Committee for Chemistry of the Royal Society, England; Division of Chemistry and Chemical Technology of the National Research Council, USA; The Academy of Sciences in Moscow, USSR) are the adhering bodies to IUPAC. At present there are some 36 national adhering bodies (see Appendix 1).

Internationally, the importance of chemistry has been recognized for many years and, during the fifty years preceding the First World War, there were many attempts at collaborative action. The Union, as we know it today, originated in London in November 1918, through the joint action of Sir WILLIAM POPE, the then President of the Society of Chemical Industry, and PAUL KESTNER, at that time President of the Société de Chimie Industrielle, and was formally constituted at a meeting in Rome in June 1920.

## THE UNION - WHAT IT DOES

The Union is essentially concerned with those aspects of chemistry, both academic and industrial, about which international agreement or uniform practice is desirable. Examples are nomenclature, atomic weights, symbols and terminology, physicochemical constants, and certain methods of analysis and assay. At the biennial conferences of the Union reports on such subjects are presented by the numerous Commissions dealing with them, discussed, and, after approval, are published.

Thus, the Union, through its Commissions, offers an international forum where outstanding specialists in many fields of interest can meet to exchange opinions and experiences with the object of reaching agreements that will promote the progress of chemistry throughout the world. The adoption of these agreements or recommendations is not mandatory for the adhering countries - it is wholly voluntary. Nevertheless, the expertness of judgment that goes into them and the care taken to consider all points of view ensure their general acceptance.

The Union also sponsors international congresses and symposia organized by its Sections or Commissions in their respective fields of interest. A general international Congress was held in New York City in 1951, in conjunction with the Diamond Jubilee meetings of the American Chemical Society. In Sweden in 1953, there were held a Congress of Physical Chemistry, and Symposia on Macromolecules and on the Chemistry of Wood and its Constituents.

The XVIIIth International Conference and the XIVth International Congress of Pure and Applied Chemistry (Organic Chemistry) took place in Zurich in 1955.

The XVth International Congress dealing with Analytical Chemistry was held in 1956 in Lisbon.

The XIXth International Conference and the XVIth International Congress were held in Paris in 1957 following the Centenary Celebration of the Société chimique de France. The Congress covered the areas of Physical, Inorganic and Organic Chemistry.

The XXth International Conference and XVIIth International Congress of Pure and Applied Chemistry were held in Munich between August 25 and September 6, 1959.

The main items of business for the XXth Conference were:

- (1) Election of officers.
- (2) Affiliation of the World Petroleum Congress, the Congress on Catalysis and the International Symposium on the Reaction of Solids.
- (3) Discussion of the ways in which the Union can be more effective in the general field of Applied and Industrial Chemistry.
- (4) Discussion of ways of ensuring a more stable income for the Union.

The XVIIth International Congress dealt mainly with Inorganic Chemistry, as well as with Biological Chemistry.

The XVIIIth International Congress will be held in Montreal, at the invitation of the Canadian National Research Council in 1961.

## THE UNION - HOW IT DOES IT

The structure of the Union is shown in the diagram which forms Appendix 2. The executive agency of the Council is the Bureau, which is composed of the President, two past Presidents, the Secretary General, the Treasurer, the Presidents of the six Sections, three Vice Presidents (elected by the Council) and eight members elected by the Council. Thus the total membership of the Bureau is 22. The Executive Committee of seven members, consisting of the President, Secretary General, Treasurer and four members of the Bureau acts, between meetings of the Bureau.

The Executive Committee as elected at the XXth Conference is as follows:

W. ALBERT NOYES JR., President of the Union

The University of Rochester, Rochester 20, New York

Sir E. CHARLES DODDS, Treasurer, Courtauld Institute of Biochemistry  
The Middlesex Hospital Medical School, London W.1 (GB)

B. A. KASANSKI, Section de Chimie de l'Académie des Sciences,  
Moscou (USSR)

WILHELM KLEMM, Anorganisch-chemisches Institut der Universität,  
Hindenburgplatz 55, Münster, Westf. (Federal German Republic)

MAURICE LETORT, Directeur général de CERCHAR, 35, rue St-Dominique,  
Paris-7<sup>e</sup> (France)

RUDOLF MORE, Secretary General, c/o Sandoz Ltd. Bâle 13 (Suisse)

Sir ALEXANDER TODD, Chemical Laboratory of the University,  
Lensfield Road, Cambridge (GB)

The Union is divided into six Sections, five of which are concerned with the five principal branches of fundamental chemistry, and the sixth with the general field of applied chemistry. The Sections are practically autonomous except in respect to financial matters. They elect their own officers and can, subject to the approval of the Bureau, form or dissolve Commissions. A Section may organize itself by Divisions, each of which may



sponsor several Commissions. The only Section which thus far has made use of the divisional organization is that of Applied Chemistry. The titles of the Divisions (see Appendix 2) disclose the reason for this type of organization in the very broad field of applied chemistry.

The ultimate working units of the Union are the Commissions, and in a number of instances Sub-Commissions. Each Commission is associated with, and responsible to, a Section of the Union. Much of the work of the Commissions is conducted by correspondence, but it is obviously necessary, for effective collaboration, for Commissions to convene at intervals, preferably at least once in two years. To promote such meetings the Union grants partial subsidy of travel expenses so far as its meager funds allow.

The most important activity of IUPAC during the past few years was concentrated on the establishment of Nomenclature Rules:

The Physical Chemistry Section has published a manual of Physico-Chemical Symbols and Terminology (in English and French) by the appropriate Commission.

The Inorganic Chemical Section has elaborated "The Definitive Rules for Nomenclature of Inorganic Chemistry".

The Commission on Atomic Weights brought up to date the "Table of Atomic Weights" of 1957, and a "Table of the Radioactive Elements" 1957.

The new scale for Atomic Weights and Nuclidic Masses will not be established until 1961.

The Organic and Biological Chemistry Sections have issued the "Definitive Rules for the Nomenclature of Organic Chemistry".

With the aim of better dissemination of scientific knowledge a new international journal "Pure and Applied Chemistry" will be created by the Union.

## THE UNION - HOW IT IS SUPPORTED

All the officers of IUPAC accomplish their duties on the honorary basis and without cost to the Union. Administrative expenses are therefore neglected. The Union's funds are derived from two sources: national contributions and grants-in-aid from UNESCO, with which the Union is affiliated through the International Council of Scientific Unions. National contributions are in three categories. At the 1953 Conference in Stockholm the National contributions were fixed as follows: Member countries in Category A, \$ 1300; Member countries in Category B, \$ 800; Member countries in Category C, \$ 450.

The expanding program of UNESCO has meant that successive budgets approved by General Conferences of UNESCO have scarcely kept up with inflation, and grants to the International Council of Scientific Unions are actually smaller than they were ten years ago. Since there are now 13 member Unions (two new ones were admitted in 1955) and an increasing amount of activity directly under the aegis of ICSU, it is evident that contributions from UNESCO (through ICSU) to the Union of Pure and Applied Chemistry do not cover more than a small fraction of total costs. Added income must be found if the Union and its Sections and Commissions are to do more effective work.



## IUPAC - NATIONAL ADHERING BODIES

- ARGENTINA Asociación Química Argentina, Hipolito Yrigoyen 679, Buenos Aires
- AUSTRALIA Australian Academy of Science, Gordon Street, Canberra City, A.C.T.
- AUSTRIA Verein Österreichischer Chemiker, Eschenbachgasse 9, III.Stock, Wien 1
- BELGIUM Comité National Belge de Chimie, Prof. J. GILLIS, 22, rue J. Plateau, Gand
- BRAZIL Associação Brasileira de Química, Caixa Postal 550, Rio de Janeiro
- BULGARIA Académie des Sciences de Bulgarie, Sofia
- CANADA National Research Council, Division of Chemistry, Ottawa
- CHINA (TAIWAN) Chinese Chemical Society, P.O.B. 609, Taipei/Taiwan
- COLOMBIA Ministerio de Minas y Petroleos, Laboratorio Químico Nacional, Apartado 2577, Bogotá
- CZECHOSLOVAKIA Chemical Society of Czechoslovakia, Dr. JAN JELINEK, Gregova 12, Prague 12
- DENMARK Danske Kemiske Foreningers Faellesraad for internationalts Samarbejde, 83, Sølvgade, Copenhagen K
- FINLAND Prof. A. Virtanen, Kalevankatu 56B, Helsinki
- FRANCE Comité National de la Chimie, 28, rue St-Dominique, Paris-7<sup>e</sup>
- GERMAN FEDERAL REPUBLIC Deutscher Zentrallausschuss für Chemie, Haus der Chemie, Karlstrasse 21, Frankfurt/Main
- GREAT BRITAIN British National Committee for Chemistry, Burlington House, Piccadilly, London W.1
- HUNGARY M. le Prof. Dr. GEZA SCHAY, Président de l'Organisation Nationale, Müegyetem XI, Stoczek u. II, Budapest
- INDIA Department of Scientific Research and Technical Education, Ministry of Education and Scientific Research, Government of India, New Delhi
- IRELAND Prof. J. M. O'CONNOR M.D., D.Sc., Nat. Adhering Org., The Royal Irish Acad., 19, Dawson Street, Dublin
- ISRAEL Israel Chemical Society, 30 Jehuda Halevi Str., Tel-Aviv
- ITALY Consiglio Nazionale delle Ricerche, Comitato per la Chimica, Piazzale delle Scienze 7, Rome
- JAPAN Science Council of Japan, Ueno Park, Tokyo
- LUXEMBOURG M. RENÉ WEISS, Dr ès sciences chimiques, 33, rue de la Libération, Esch-sur-Alzette
- NETHERLANDS Chemical Council for the Netherlands, Carel van Bylandtlaan 30, The Hague
- NORWAY Norks Kjemisk Selskap, Universitetets Kjemiske Institutt, Blindern-Oslo
- POLAND Prof. W. SWIETOSLAWSKI, Université de Varsovie 1, rue Pasteur, Varsovie
- PORTUGAL Sociedade Chimica Portuguesa, Faculdade das Ciencias da Universidade, Rua do Vale a Jesus 6, Lisbon
- RUMANIA Académie de la République populaire roumaine. Spl. Indenpendenței 89, Bucarest
- SPAIN Consejo Superior de Investigaciones Cientificas, Instituto Alonso Barba de Quimica, Serrano 121, Madrid
- SWEDEN Svenska National Kommitteen for Kemi, Postfack 30017, Stockholm 30
- SWITZERLAND Comité suisse de la Chimie, Ecole de Chimie, 22, bd des Philosophes, Genève
- SOUTH AFRICA, UNION OF South African Council for Scientific and Industrial Research, P.O. Box 395-Posbus, Pretoria
- TURKEY Türkiye Kimya Cemiyeti Merkezi, Istiklâl Caddesi, Imam Sodak n° 22, Kat. I-Beyoglu, Istanbul 829
- UNITED ARAB REPUBLIC National Research Council, Ministry of Education Sh. al-Tahrir, Dokki, Cairo
- UNITED STATES National Research Council, Division of Chemistry and Chemical Technology, 2101 Constitution Avenue, Washington 25 D.C.
- USSR Academy of Sciences, B. Kaluzskaya 14, Moscow
- VENEZUELA Sociedad Venezolana de Química, Apartado 3895, Caracas
- YUGOSLAVIA Union des Soc. chim. de la RPFY, Dr P. Tudundzic, boîte postale 494, Belgrade

# THE STRUCTURE OF THE UNION

THE COUNCIL

THE BUREAU

THE EXECUTIVE COMMITTEE

SECTIONS	COMMISSIONS	SUBCOMMISSIONS
ANALYTICAL CHEMISTRY	<ul style="list-style-type: none"> <li>Analytical Reactions</li> <li>Microchemical Techniques</li> <li>Terminology and Expression of Analytical Results</li> <li>Optical Data</li> <li>Electrochemical Data</li> <li>Equilibrium Data</li> </ul>	
APPLIED CHEMISTRY		
DIVISIONS:		
Food		<ul style="list-style-type: none"> <li>Vitamin Assay</li> <li>Trace Elements</li> <li>Additives to Food</li> </ul>
Water, Sewage and Industrial Wastes		
Oils and Fats		
Pulp, Paper and Board		
Plastics and High Polymers		
Pesticides		
Organic Coatings		
Fermentation		
Toxicology and Industrial Hygiene		
	Ad Hoc Committee on Chemical Engineering	
	Ad Hoc Committee on Surface Activants	
BIOLOGICAL CHEMISTRY	<ul style="list-style-type: none"> <li>Nomenclature of Biological Chemistry</li> <li>Protein Standards</li> <li>Clinical Chemistry</li> </ul>	<ul style="list-style-type: none"> <li>Nomenclature of Phosphatides</li> <li>Nomenclature of Pectin-Hydrolyzing Enzymes</li> <li>Standardization of Enzyme Analysis</li> </ul>
INORGANIC CHEMISTRY	<ul style="list-style-type: none"> <li>Atomic Weights</li> <li>Nomenclature of Inorganic Chemistry</li> <li>High Temperatures and Refractories</li> <li>Geochemistry</li> </ul>	<ul style="list-style-type: none"> <li>Gases</li> <li>Condensed States</li> </ul>
ORGANIC CHEMISTRY	<ul style="list-style-type: none"> <li>Nomenclature of Organic Chemistry</li> <li>Codification, Ciphering and Punched-card Techniques</li> </ul>	
PHYSICAL CHEMISTRY	<ul style="list-style-type: none"> <li>Physico-Chemical Symbols and Terminology</li> <li>Chemical Thermodynamics</li> <li>Electrochemistry</li> <li>Affiliated Commission: International Committee for Electrochemical Thermodynamics and Kinetics</li> <li>Macromolecules</li> <li>Physico-Chemical Data and Standards</li> <li>Molecular Structure and Spectroscopy</li> <li>Applied Radioactivity (Joint)</li> </ul>	<ul style="list-style-type: none"> <li>Experimental Thermochemistry</li> <li>Experimental Thermodynamics</li> <li>Type Samples</li> <li>Nomenclature</li> <li>Publication</li> </ul>

## IUPAC FINANCE COMMITTEE

### *Report of the Finance Committee to the Bureau and to the Council of IUPAC, 26 August, 1959*

The Finance Committee appointed by the Council on 26 August 1959 met on that day under the chairmanship of Professor A. TISELIUS. The Committee, after discussing thoroughly the problems laid down in its terms of reference, reported as follows:

(1) It is *recommended* that, notwithstanding the economies made previously by the Union, further vigorous attempts at economy should be made as follows:

- (a) Cheaper air travel might be provided by arrangements with IATA and its companies;
- (b) the period of the activity of new commissions should be limited to a maximum of 4 years. Only those Commissions should continue after the 1961 Conference which provide sufficient evidence for their existence. The evidence should be given in writing by Section Presidents to the Executive Committee at least 4 months before the 1961 Conference;
- (c) Sections should be asked to reduce the number of their Commissions to an absolute minimum. This reduction should become effective at the end of the 1961 Conference.

(2) The question whether the maximum membership of Commissions should be reduced from 10 (as hitherto) to 8 (in future) was discussed at length. With 9 votes in favour and 5 votes against it was *recommended* that the maximum membership of each Commission be reduced to 8.

Nomenclature Commissions, the Atomic Weight Commission and Commissions on Physico-Chemical Symbols as well as Data are excluded from these recommendations.

(3) The Committee was of the opinion that an essential part of any scheme to enlarge the income of the Union would be a substantial increase in the annual subscriptions of member countries. It therefore *recommends* unanimously that the Council should consider the following scheme involving an increase in the number of categories in the Union.

Category C	annual contribution Dollars	450
Category B1	annual contribution Dollars	800
Category B2	annual contribution Dollars	1 600
Category A1	annual contribution Dollars	2 600
Category A2	annual contribution Dollars	5 000
Category A3	annual contribution Dollars	10 000

The number of votes should be as hitherto.

(4) The Committee *recommends* further that details of the above proposals together with an indication of the Category which seems appropriate to the country in question be forwarded to the National Adhering Body in each country for consideration. It is *recommended* that the Honorary Treasurer be entitled to allocate an appropriate sum for a careful study of the financial problems of the Union. In this way a document describing the Union's activities and the need for increased support could be prepared and the National Committees would thereby be provided with strong arguments which they can, if necessary, use to convince their Governments of the need to increase the annual contributions. The Honorary Treasurer's

study should include various schemes designed to relate the annual contributions to the turn-over of the chemical industry of a country, the number of its registered chemists, and the population, and should include also comparison with ICSU and UNESCO schemes. In some cases it might be useful to provide National Committees also with the exact amounts of money paid by the Union for the Titular Members from each country in a recent stated period. Each National Adhering Body (or National Committee) should be asked to transmit its views to the Bureau not later than 31 March 1960, so that the new scheme—if acceptable—could be brought into operation by 1961 at the latest. The Executive Committee must arrange for appropriate changes in Statutes and Rules.

(5) It is *recommended* that the new IUPAC Journal should be distributed in two ways:

- (a) an ordinary subscription which shall include an amount for the benefit of the Union's Treasury;
- (b) an extra subscription from industrial firms.

(6) Within the Committee different opinions were expressed on the desirability and efficiency of an appeal to industry for financial help. In any case, if such an appeal is made, this should be done through the National Committees. If money is to be sought from industry, it might help if the Union could offer some advantage to firms which subscribe. For example, subscription to the IUPAC Journal at the higher rate might entitle the subscriber to the privilege of receiving advanced information about all IUPAC functions and also receiving appropriate invitations.

Other methods which have been used successfully to raise funds for scientific purposes in various countries should also be considered for example, subscription by 7-year covenant.

## COMITÉ DES FINANCES DE L'IUPAC

### *Rapport du Comité des Finances au Bureau et au Conseil de l'IUPAC, 26.8.1959*

Le Comité des Finances, désigné le 26 août 1959 par le Conseil, s'est réuni le même jour sous la présidence du Professeur A. TISELIUS. Le Comité a émis les recommandations suivantes, après examen des problèmes posés:

1° Des efforts d'économie extrêmement sérieux sont à faire, en plus de ceux déjà pratiqués par l'Union:

- a) Des accords sont à envisager avec les compagnies aériennes pour obtenir de meilleures conditions de transport pour les membres;
- b) l'activité des nouvelles commissions devrait être limitée à une période maximum de quatre ans. Seules, seraient maintenues en activité après la Conférence de 1961, les commissions dont l'intérêt serait certain. Il appartiendrait aux présidents de Section d'établir l'intérêt de ce maintien par lettre adressée au Comité exécutif au moins quatre mois avant la Conférence de 1961;



- c) il serait demandé aux Sections de réduire au minimum le nombre de leurs membres. Cette réduction devrait être effective à la fin de la Conférence de 1961.

2° La réduction du nombre des membres titulaires des Commissions (ramenés de 10 dans le présent à 8 dans le futur) a été longuement discutée. Par 9 voix favorables contre 5, il est recommandé de ramener à 8 le nombre des membres de chaque Division et Commission. Toutefois, les Commissions de nomenclature, de poids atomiques, celles des symboles physico-chimiques et des données-étalons ne sont pas comprises dans les présentes recommandations.

3° Le Comité considère qu'un moyen essentiel d'élargir les possibilités de l'Union serait d'augmenter de façon sensible les cotisations annuelles des pays membres. Aussi est-ce à l'unanimité qu'il recommande au Conseil de considérer une proposition qui tendrait à augmenter le nombre des catégories de membres de l'Union:

Catégorie C	Cotisation annuelle	\$	450
Catégorie B1	Cotisation annuelle	\$	800
Catégorie B2	Cotisation annuelle	\$	1 600
Catégorie A1	Cotisation annuelle	\$	2 600
Catégorie A2	Cotisation annuelle	\$	5 000
Catégorie A3	Cotisation annuelle	\$	10 000

Le nombre de voix restant inchangé.

4° Le Comité recommande, en outre, que les propositions précédentes soient présentées pour examen à l'organisme adhérent de chaque pays, assorties de l'indication de la catégorie qui paraîtrait le mieux appropriée à ce pays. Il est recommandé d'autoriser le Trésorier de l'Union à affecter une certaine somme à l'étude minutieuse des problèmes financiers de l'Union. Dans cette voie, les Comités nationaux devraient être informés des arguments de valeur, propres, si nécessaire, à convaincre leurs Gouvernements du besoin d'augmenter leurs contributions annuelles. L'étude du Trésorier devrait présenter diverses possibilités de contributions, annuelles, en fonction de l'importance des industries chimiques de chaque pays, du nombre de chimistes qu'il compte, de sa population et aussi de sa position à l'ICSU et à l'UNESCO. Dans quelques cas, il pourrait être utile de communiquer aux Comités nationaux, le montant des sommes allouées par l'Union aux membres titulaires de chaque pays, pendant une période récente donnée. Chaque organisme adhérent ou Comité national serait invité à faire connaître son point de vue au Bureau de l'Union avant le 31 mars 1960, de sorte que le nouveau plan, s'il est acceptable, puisse entrer en application dès 1961. Il serait, en outre, nécessaire que le Comité exécutif ait pu réaliser les modifications adéquates des statuts et règles de l'Union.

5° Il est recommandé que le nouveau Journal IUPAC soit diffusé de deux manières:

- par souscription normale, assurant à l'Union un revenu par abonnement annuel;
- par souscription extraordinaire par les sociétés industrielles.

6° Différentes opinions furent exprimées par le Comité sur l'opportunité et l'efficacité d'un appel à une aide financière auprès de l'industrie chimique. Toutefois, dans l'éventualité où cet appel serait fait, il devrait intervenir par l'intermédiaire des Comités nationaux. L'obtention de ressources de la part de l'industrie pourrait être facilitée par l'offre de quelques

avantages aux souscripteurs industriels. Par exemple, la souscription au Journal IUPAC au taux le plus élevé, conférerait au souscripteur le droit d'être informé à l'avance sur les activités de l'IUPAC et d'être invité à participer aux dites activités. D'autres méthodes pourraient être mises à l'étude, en s'inspirant de celles qui ont permis de recueillir des fonds pour les besoins de la recherche scientifique dans divers pays, par exemple celle des conventions de souscriptions pour 7 ans.

## I. FINANCIAL QUESTIONS

One very important item regarding financial questions has already been treated in the introductory remarks. The main problem with which the Executive Committee is faced consists in establishing the budget for 1960, which is a non-Conference year.

A non-Conference year is always characterized by reduced activity and subsequent financial recovery: means must be put aside to meet the heavy financial burden of the Montreal Conference and Congress in 1961.

However following the decisions and recommendations made by the Council in Munich, the Executive Committee reconfirmed its decision:

- “(a) to remove the ceiling of \$400;
- (b) to pay as large a part of the tourist return air fare as the Executive Committee may decide is warranted by the Union's finances;
- (c) to pay subsistence allowances at a rate fixed by the Executive Committee.”

The budget for 1960 established by the Honorary Treasurer is based on this decision.

At the request of the Honorary Treasurer, Dr. D. C. MARTIN, Assistant Secretary of the Royal Society in London, will in future help the Honorary Treasurer with clerical assistance. The office of the Royal Society, Burlington House, Piccadilly, London W.1 (in particular Mrs. T. BRABAZON) will lead henceforward the day to day correspondence regarding annual dues, ICSU subventions and payments of travel and subsistence to Titular Members.

This valuable assistance will be highly appreciated by the Honorary Treasurer, Sir CHARLES, and more particularly by the Union Bank of Switzerland and the Secretary General who have been overburdened.

Also some uneasy feelings that too much of the Union's powers might be concentrated in Switzerland will in future be no longer probable.

## II. RELATIONS WITH THE INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS—ICSU

### Committee on Space Research—COSPAR

*Abstracts of the Report of the Chairman for the period: 14 November, 1958–10 August, 1959*

#### GENERAL

The Committee on Space Research (COSPAR) was established, provisionally until 31 December, 1959, by the General Assembly of ICSU in Washington, D.C., 29 September to 2 October, 1958. On 14 and 15 November, 1958, the COSPAR held its first meeting in London; on 12–14 March, 1959, the Second Meeting was held in The Hague, and on 8–9 June, 1959, the Second Meeting of the Executive Committee was held in Paris.

#### CHARTER

During the London meeting the following Charter was adopted:

“The purpose of COSPAR is to further on an international scale the progress of all kinds of scientific investigation which are carried out with the use of rockets or rocket-propelled vehicles. COSPAR shall be concerned with fundamental research. It will not normally concern itself with such technological problems as propulsion, construction of rockets, guidance and control.

These objectives shall be achieved through the maximum development of space research programs by the international community of scientists working through the ICSU and its adhering national academies and unions. Recognizing the need for international regulation and discussion of certain aspects of satellite and space probe programs, the Committee shall keep itself fully informed on United Nations or other international activities in this field, in order to assure that maximum advantage is accorded international space science research through such regulations, and to make recommendations relative to matters of planning and regulation that may effect the optimum program of scientific research.”

*The First International Space Science Symposium—Nice/France  
11–16 January, 1960*

(Abstracts from the Third Circular)

#### DATE

In view of the number of papers that is now expected, the duration of the Symposium has been extended to 5 days.

#### PLACE

The Symposium will be held in the Centre universitaire méditerranéen, Promenade des Anglais, at Nice. Besides the main meeting room, several smaller rooms and the entrance hall will be available for miscellaneous purposes and for the display of instruments.

#### PARTICIPATION

The response to the earlier announcements and to the invitations issued to the National Academies and to the National IGY Committees has been very favourable. The situation may arise that not all applications to attend the Symposium can be accepted. In that case the advice of the National Academies will be asked on the final list of participants from their country.



## PROGRAMME

In response to some questions raised about the formulation of the subject matter in the earlier announcements it may be said that the Symposium will deal with all scientific problems that fall within the COSPAR Charter. The Second Circular mentioned specifically tracking, telemetering, radiation belts and orbital variations. However, also papers on meteors, magnetic fields, ultraviolet radiation and on any other subject specifically connected with space science (but not with propulsion, etc.) will be acceptable. It is hoped that a day will be devoted to the biosciences, including methods of testing for extraterrestrial life and sterilization of space vehicles.

There will be several longer lectures introducing a subject.

Parallel sessions will be avoided, if possible, in view of the intrinsic interest of every participant in every subject. In preparing their papers, the speakers should bear in mind that they speak to a mixed audience of professional scientists, and that the main purpose of this Symposium is to exchange scientific information.

## DISPLAY

The display of scientific instruments, drawings and photographs is intended to be an integral part of the Symposium. It will serve for a more detailed exchange of information among the scientists of different countries than is possible upon hearing papers and seeing projections. The display is *not* a public exhibition, although the possibility exists that the public will be admitted during one or two nights.

The following rules have been set for this display:

- (1) The subject matter should be as described under the heading "Programme".
- (2) The scientific academies of the countries launching rockets or satellites will be individually informed of the approximate amount of table space and wall area available. Displays from individuals or institutions in these countries will *not* be accepted unless incorporated in the display arranged by the appropriate academy.
- (3) Some items for display from other countries, e.g. tracking equipment or instruments designed for use in space vehicles, will be accepted.
- (4) Some wall-space will be reserved for enlargements of diagrams shown as slides in the scientific papers in order to facilitate discussions on these papers after the sessions. In order to economize on space it is suggested that the maximum dimensions of photographs, diagrams or charts should not, normally, exceed 50 centimeters.
- (5) Any item displayed under 2, 3 or 4 should have a legend according to the standards customary in scientific journals.

## III. RELATIONS WITH MEMBER COUNTRIES

### Corea

Mr. SANG UP CHOI, Professor at the Department of Chemistry of the Seoul National University, has written to the Secretary General, applying for the membership of Corea to the Union.

This application was submitted to the Executive Committee during its meeting in Paris, in December 1959.



## IV. ACTIVITIES OF THE UNION THROUGH THE SECTIONS AND COMMISSIONS

### Physical Chemistry Section

#### *Report on the Session of the Commission on Macromolecules of the IUPAC in Wiesbaden, October 1959*

(1) The Commission met on Monday, 12 October, from 6.15 p.m. to 7.45 p.m. and on Tuesday, 13 October, from 5.00 p.m. to 6.45 p.m.

(2) The Minutes of the Nottingham Meeting were read and accepted.

(3) Prof. W. KERN (Germany) reported on the IUPAC in Munich, which was attended by about 3,000 scientists and apparently was a very successful conference.

(4) Prof. O. KRATKY (Austria) reported on the present state of a German Nomenclature Proposal. The discussions on the final formulation are not yet concluded; a last session of the Committee will take place on 16 October, 1959. He will report by letter to the members of the Committee on the results of this session.

(5) Prof. V. A. KARGIN (USSR) told the Commission that the Russian Nomenclature proposal will be ready at the end of November 1959.

(6) Prof. SAKEWADA (Japan) expects the Japanese version to be finished by the end of 1960.

(7) Dr. J. HENGSTENBERG (BASF, Germany) kindly volunteered to prepare for the Commission a larger quantity (4–5 lb) of a polystyrene fraction with a very narrow molecular weight distribution. He uses the method of M. SZWARC and purifies the raw polymer by a subsequent extraction. Preliminary measurements have shown that the  $\bar{M}_w:\bar{M}_n$  ratio is about 1:14. The following laboratories volunteered to investigate this material by osmotic pressure measurements: G. V. SCHULZ (Mainz), G. NATTA (Milano), A. NASINI (Torino), M. MAGAT (Paris), G. M. KLINE (Washington), W. STAVERMAN (Delft), A. MEUNSTER (Germany), H. MARK (Brooklyn). Prof. H. MARK (USA) will contact Dr. HENGSTENBERG, discuss with him the details of this co-operative investigation and coordinate the collection and interpretation of the results.

(8) It was resolved that the Commission on Macromolecules should co-operate as closely as possible with the Plastics and High Polymer Commission of the Applied Chemistry Section, which holds its session in Düsseldorf on 18 October, 1959.

(9) The next International Symposium on Macromolecules will be held in Moscow, 14–18 June, 1960.

(10) The 21st IUPAC Congress will be organized in the Fall of 1961 in Montreal, Canada. It was proposed to contact the Canadian Chemical Society to find out whether they are ready to organize a Symposium on Macromolecules at this occasion.

(11) Prof. S. PALIT of the University of Calcutta has invited the Commission on Macromolecules to sponsor an International Symposium in Calcutta on February 1963.

(12) A Sub-Committee on Nomenclature was set up to study the new proposal of Prof. NATTA on stereoregulated polymers. It consists of M. C. HUGGINS (Chairman), G. NATTA, V. DESREUX and H. MARK.

Respectfully submitted, H. MARK

## Inorganic Section

### Report of the Commission on Atomic Weights

(The official version will be published in the Comptes Rendus)

The Commission on Atomic Weights, with the approval of the Section Committee of the Section of Inorganic Chemistry, recommends to the Council of the Union the adoption of a new scale of atomic weights in replacement of the currently used scale, based on the whole number 16 as the atomic weight of natural oxygen. The recommended new scale is based on the whole number 12 as the atomic weight (nuclidic mass) of the dominant natural isotope of carbon, carbon-12. This recommendation is made subject to the provision that action is taken by the International Union of Pure and Applied Physics to recommend the adoption of the same scale in replacement of the scale of nuclidic masses currently used by physicists, which is based on the whole number 16 as the nuclidic mass of the dominant natural isotope of oxygen, oxygen-16. If the Union of Physics takes such action at its General Conference in 1960, our Commission proposes that final action of approval be taken by the Union of Chemistry at its Conference in 1961. At that time, and subject to approval by the Council, our Commission would publish a table of atomic weights based on the carbon-12 scale. Pending such action, the Commission proposes to make no changes in the atomic weights as published in the Comptes Rendus of the Paris Conference in 1957.

The Commission has concerned itself for several years with the problem of correcting the ambiguity of the chemical scale of atomic weights that results from a slight variation in the isotopic composition of natural oxygen. At the same time we hoped it might be possible to propose a single scale that would be used by both chemists and physicists for the expression of atomic weights and nuclidic masses, and thus to avoid the confusion that sometimes occurs through the indiscriminate use of the two existing scales. It became apparent that a new scale, to be acceptable to chemists, should result in minimal changes in the values of atomic weights as based on the present chemical scale, changes preferably smaller than 1 part in 10,000. For acceptability to physicists a new scale should have no logical disadvantages as compared with the present physical scale and should be operationally satisfactory for the comparison of nuclidic masses by physical measurements.

The Commission believes that the proposed carbon-12 scale meets the foregoing requirements. We concede that carbon-12 is not operationally satisfactory for the determination of atomic weights by the traditional techniques of the chemist. However, we do not consider this a significant objection to the adoption of the new scale, inasmuch as the atomic weight (nuclidic mass) of carbon-12 has been related, by physical means, with very high accuracy, to the atomic weights of elements that can be used as reference species for the chemical determination of atomic weights. The adoption of the carbon-12 scale will result in decreasing the values of atomic weights based on the present chemical scale by 43 parts in one million.

We consider that it would be unwise to establish a new scale of atomic weights unless such a scale will supersede the two scales now in use. For this reason, we propose the adoption of the carbon-12 scale only if and when the anticipated identical action is taken by the Union of Physics.

If the Council takes favorable action on our recommendation, we recommend further that appropriate steps be taken to bring to the attention of the adhering bodies in all member countries the proposals herein reported,

for endorsement or objection during the two-year period before the next Conference. The Commission will, if desired, prepare a letter to be addressed to the national adhering bodies which will contain a more detailed justification of the proposed change, as well as references to published material reporting in detail our consideration of the problem of a unified scale.

Signed: Dr. E. WICHERS, President

## **Commission des Hautes Températures**

*(Sous-Commissions Gaz et Etats condensés)*

### **Rapport sur les réunions de Munich, 27 et 28 août 1959**

Deux réunions ont eu lieu à Munich, les 27 et 28 août 1959. Assistaient à ces réunions: le Dr HULSE, représentant le Prof. THRING (Sheffield, Grande-Bretagne), membre de la Sous-Commission Gaz; le Dr FRANKLIN (National Bureau of Standards, Washington, Etats-Unis), proposé par le Dr WICHERS, pour succéder au Dr ZERFOSS, décédé; le Dr Fœx (France), secrétaire de la Sous-Commission des Etats condensés.

Le Prof. CHAUDRON (France), Président de la Commission, n'avait pu se rendre à Munich et avait demandé au Dr Fœx de le représenter. Différents membres de la Commission s'étaient excusés, en particulier le Prof. BREWER (Etats-Unis), le Prof. HAGG (Suède) et le Prof. TROMBE (France).

Différentes questions ont été examinées au cours de ces réunions:

1<sup>o</sup> *Travail de la Commission.* Le Dr Fœx a donné quelques précisions concernant le travail effectué au cours de ces deux dernières années, tant par la Sous-Commission Gaz (indications transmises par le Prof. BREWER, secrétaire) que par la Sous-Commission Etats condensés.

a) Des listes trimestrielles de titres bibliographiques ont été échangées entre différents pays et distribuées à l'intérieur de ces pays par les soins de différents responsables, à savoir, pour les états condensés: le Dr ZERFOSS, puis le Dr WALKER (Etats-Unis), le Prof. HAGG (Suède), le Dr MIJ (Japon), le Dr ATMA RAM (Indes) et le Dr Fœx (France) qui groupe l'ensemble des bibliographies. En outre, la collaboration de correspondants allemand, anglais, autrichien, canadien et russe est prévue pour un proche avenir. Des contacts à ce sujet ont été pris à Munich. Des bibliographies générales intéressant les différents pays ont été établies par le Prof. BREWER, secrétaire de la Sous-Commission Gaz.

b) Des listes de spécialistes s'intéressant aux questions de hautes températures (gaz et états condensés) ont été établies ou sont en préparation pour les Etats-Unis, les pays scandinaves et la France.

c) L'ensemble du travail précédent a été réalisé grâce à l'aide bénévole de différents organismes, en particulier par le secrétariat du Laboratoire de l'Energie solaire de Mont-Louis (France), mis à notre disposition par son Directeur, le Prof. TROMBE, et par le National Bureau of Standards de Washington (Etats-Unis). Pour l'avenir il a été envisagé de demander à l'IUPAC, d'assurer l'édition des publications précédentes. Des contacts à ce sujet ont été pris, avec le Prof. THOMPSON (Oxford), Président du Comité des Publications de l'IUPAC, le coût de l'abonnement pourrait être de 1 dollar par an pour un tirage d'environ 1000 exemplaires. Une décision à ce sujet sera prise ultérieurement après prises de contact avec différents pays.



2<sup>o</sup> *Réunion de la Commission en 1961 à Montréal, au Canada.* Le Prof. CHAUDRON a indiqué au Dr Fœx qu'il souhaiterait vivement que la Commission puisse se réunir à Montréal en 1961. Cette réunion semble en effet indispensable pour réaliser une bonne coordination du travail de cette Commission, qui sera probablement à cette époque en pleine activité.

3<sup>o</sup> *Organisation d'un colloque au Canada en 1961.* Le Prof. CHAUDRON, Président de la Commission, a adressé une demande officielle dans ce sens au Dr MORF, secrétaire général de l'IUPAC. Les membres des deux Sous-Commissions Gaz et Etats condensés ont manifesté leur intérêt pour un tel colloque. De plus le Président de la Sous-Commission de Thermodynamique expérimentale, le Prof. NEWITT, et son secrétaire, le Dr WADDINGTON, ont également indiqué que leur groupe désirerait participer à un tel symposium.

Des contacts ont été pris avec le Prof. MARION, organisateur du congrès canadien de 1961, ainsi qu'avec le Dr WICHERS et le Prof. EMELEUS, ancien président et nouveau président de la Section de Chimie minérale.

Le colloque qui pourrait avoir lieu à Montréal, au moment du congrès de chimie de 1961, devrait comporter différents sujets dont certains intéresseraient les Commissions de Thermodynamique et des Gaz, et d'autres concerneraient les états condensés.

4<sup>o</sup> *Proposition de nomination de nouveaux membres titulaires et de nouveaux membres associés (Sous-Commission des Etats condensés).* Le Dr FRANKLIN (Etats-Unis) a été proposé par le Dr WICHERS et le Dr BREWER, pour remplacer le Dr ZERFOSS (Etats-Unis) décédé.

En ce qui concerne les membres associés, et sous réserve d'acceptation pour chacun d'eux :

Dr ATMA RAM,	Director Central Glass and Ceramic Research Institute, Calcutta, Indes
Dr BARRETT,	Chemical Engineering Department, Imperial College, London SW 7, Grande-Bretagne
Prof. BRAUER,	Fribourg (Brigau), Allemagne
Dr BRIGHT,	Chief of the Physical and Crystal Chemistry Section, Department of Mines and Technical Surveys, 552, Booth Street, Ottawa, Canada
Dr MCCARTNEY,	University of New South Wales, P.O. Box 1, Kensington, N.S.W. Australie
Dr DIAMOND,	National Bureau of Standards, Washington 25, D.C., Etats-Unis
Dr MII,	Government Industrial Research Institute, Hirate Machi, Kita Ku, Nagoya, Japon
Prof. NOWOTNY,	Vienne, Autriche
Dr THAKUR,	Central Glass and Ceramic Research Institute, Calcutta, Indes
Dr WALKER,	National Bureau of Standards, Washington 25, D.C., Etats-Unis

Un membre associé russe restant à désigner.



## Commission mixte de Radio-activité appliquée

### Compte rendu de la réunion tenue à Paris le 27 octobre 1959

*Présents:* Dr SELIGMAN (AIEA), Président; Dr CALVIN; Prof. DE HEVESY; Prof. FEATHER; Mr. LACLAVÈRE; Prof. MONNIER; Dr MORF (Secrétaire général de l'UICPA); Dr RODERICK (Unesco); Mr. FISHER.

*Excusés:* Dr ELLIOT; Prof. PEREY; Prof. VON MURALT; Prof. WILSON.

Le Président ouvre la séance en remerciant l'Union des Industries chimiques d'avoir bien voulu mettre une salle de réunion à la disposition de la Commission. Il regrette que les règles financières de l'Unesco n'aient pas permis de continuer à tenir les réunions de la Commission dans les locaux de cette dernière organisation.

Le Président exprime ses regrets que le Prof. PEREY, empêché par la maladie, ne puisse assister aux travaux de la Commission.

Le Président propose de désigner comme Secrétaire de la Commission, M. FISHER, Chef du Service des Radio-éléments du Commissariat à l'Energie atomique français. Cette proposition est adoptée à l'unanimité.

La Commission passe ensuite à l'examen de l'ordre du jour.

#### 1<sup>o</sup> *Procès-verbal de la dernière réunion*

Le procès-verbal de la dernière réunion est adopté.

Le Dr MORF intervient cependant pour regretter que l'administration du CIUS n'ait pas permis la réunion du sous-comité dont la création avait été suggérée. En effet, une occasion unique de recueillir l'avis d'éminents spécialistes a été manquée puisque le Prof. PANETH et le Prof. JOLIOT-CURIE sont décédés depuis la dernière réunion.

#### 2<sup>o</sup> *Compte rendu du Symposium sur l'analyse par activation*

Le Symposium sur l'analyse par activation, décidé lors de la dernière réunion, a eu lieu à Vienne du 1<sup>er</sup> au 3 juin 1959 sous le double patronage de la Commission mixte de radio-activité appliquée et de l'Agence internationale de l'Energie atomique.

Le compte rendu de ce symposium sera publié par les soins de l'UICPA.

#### 3<sup>o</sup> *Réunion d'un comité pour examiner l'utilisation du radium comme étalon*

La Commission estime souhaitable qu'un groupe d'experts examine l'opportunité de conserver le radium comme étalon primaire pour la mesure des rayonnements ionisants.

Elle suggère que la présidence de ce groupe d'experts dont le nombre serait limité à huit soit confiée au Prof. B. KARLIK, Directeur de l'Institut du radium de l'Académie des Sciences de Vienne. Le Prof. KARLIK sera invité à proposer une liste de participants à la Commission, et celle-ci examinera la liste proposée.

La convocation du groupe d'experts pourrait être fixée au printemps de 1960 et en tous cas avant la réunion du Bureau international des Poids et Mesures.

#### 4<sup>o</sup> *Programme de réunions et de symposia*

La Commission examine la liste des symposia proposés en 1960 et 1961 sur des sujets qui relèvent de sa compétence:

4-1 *Le tritium comme moyen d'investigation en physique, chimie, biologie et météorologie.* L'organisation de ce symposium qui avait déjà été prévue lors de la réunion du 7 mars 1958 a dû être différée pour des raisons financières.

Il apparaît maintenant que ce symposium, dont le sujet présente un intérêt indéniable, compte tenu du développement rapide de l'emploi du tritium, pourrait être organisé en 1960 sous le patronage de la Commission et si possible de l'Agence internationale de l'Energie atomique.

4-2 *Détermination de la radio-activité des roches, datage, géologie et géochimie des isotopes.* Le Congrès international de Géologie qui se tiendra en 1960 à Copenhague ne comportera pas de section spéciale de géochimie.

Il a donc été décidé d'organiser en 1960 deux colloques:

- l'un à Copenhague sur les phénomènes photochimiques dans la haute atmosphère,
- l'autre à Helsinki sur la détermination de la radio-activité des roches, le datage, la géologie et la géochimie des isotopes.

La Commission mixte de Radio-activité appliquée pourrait aider à donner à ce second symposium une audience plus étendue.

Il est décidé que la Commission patronnera ce symposium avec l'Union de Géologie sans que ce patronage implique une aide financière.

4-3 *Datage archéologique.* La Grèce ayant demandé à l'Agence internationale de l'Energie atomique d'organiser un symposium sur le datage archéologique, cette dernière sollicite l'avis de la Commission sur l'opportunité d'organiser une telle manifestation.

La Commission estime intéressant de retenir ce symposium en l'orientant vers la détermination des âges relativement proches. Il paraît souhaitable que ce symposium n'ait lieu qu'en 1961, car certaines techniques sont récemment apparues et pourront se développer d'ici là.

Le patronage de ce symposium pourrait être triple:

- Commission mixte de Radio-activité appliquée,
- AIEA,
- Unesco.

4-4 *Utilisation des radio-isotopes en microneurophysiologie.* La neurophysiologie est un domaine qui a particulièrement bénéficié de l'utilisation des radio-isotopes. Afin de mieux faire connaître les possibilités de cette technique, l'Union internationale des Sciences physiologiques souhaite que soit organisé un symposium dont elle ne peut assurer seule le financement. Après examen, la Commission recommande qu'un tel symposium soit organisé en 1960 en recherchant le support des Unions de Physique, de Chimie, de Biochimie et des Sciences physiologiques. Cette dernière Union serait responsable de l'organisation du colloque.

#### 5° *Bibliographie sur les techniques radio-actives utilisables dans des travaux non radio-actifs*

Comme suite à la décision prise lors de la réunion du 7 mars 1958, l'AIEA a bien voulu entreprendre le rassemblement des références qui, à l'occasion d'un travail sur la radio-activité, décrètent des techniques utilisables en chimie classique.

Il faut maintenant juger de l'intérêt que présente un tel travail pour les membres d'autres Unions et choisir la meilleure méthode de présentation. A cet effet, un questionnaire détaillé accompagnant la bibliographie existante sera envoyé par les soins de l'UICPA à un grand nombre de centres de recherches importants.

#### 6° *Participation aux Conférences internationales sur les Radio-isotopes de 1960 et 1961*

Deux Conférences internationales sur les Radio-isotopes doivent avoir lieu en 1960 (Sciences physiques et applications industrielles) et en 1961 (Sciences biologiques).

Afin que ces Conférences reçoivent la plus large audience possible, il est décidé que l'UICPA fera connaître aux autres Unions l'existence de ces Conférences en soulignant qu'elles sont également ouvertes aux techniciens qui n'ont pas encore utilisé de radio-isotopes. Les Unions répercuteront ces informations sur les comités nationaux.

#### 7° *Intérêt du maintien des activités de la Commission*

Des difficultés avec le CIUS étant intervenues, le Président estime nécessaire de mettre en discussion l'utilité de la Commission. Dans un domaine à évolution aussi rapide que la radio-activité appliquée, il ne fait pas de doute que des liaisons sont nécessaires entre les représentants des différentes disciplines qui peuvent profiter de cet instrument de travail. L'AIEA qui, par vocation, est tourné vers l'aide aux pays sous-équipés ne peut qu'incomplètement remplir ce rôle.

Le représentant de l'Unesco supporte entièrement ce point de vue.

#### 8° *Questions diverses*

8-1 *Propriété légale de l'étalon primaire de radium.* Le Président rappelle qu'une discussion s'est engagée entre lui-même, comme représentant de la Commission, et le Prof. TEILLAC, Directeur de l'Institut du Radium de Paris au sujet de la propriété de l'étalon primaire de radium actuellement en dépôt à l'Institut du Radium de Paris.

Le Dr MORF souligne à nouveau (voir paragraphe I du présent procès-verbal) que l'incompréhension du CIUS a fait manquer l'occasion de régler définitivement cette question. Le Prof. PANETH, avant son décès, lui a en tous cas affirmé que l'étalon était la propriété de la Commission.

Le Prof. DE HEVESY informe la Commission que le Prof. PANETH lui a fait une déclaration analogue.

Le point de vue opposé est défendu par le Prof. TEILLAC dans une lettre du 15 octobre 1959 à M. FISHER dont copie est remise aux membres de la Commission.

Une discussion générale s'engage, sans qu'il soit possible à la Commission d'arriver à une conclusion définitive.

En conséquence, il est décidé que la Commission recherchera, sur cette question, un avis extérieur, sans que cela modifie a priori sa position en ce qui concerne le transfert de l'étalon à l'AIEA.

8-2 *Rassemblement d'informations diverses.* La Commission énumère quatre sujets sur lesquels il serait utile de recueillir et de diffuser les informations existantes:

- liste des organisations gouvernementales ou des compagnies privées qui acceptent d'entreprendre la synthèse de nouvelles molécules organiques marquées;
- pratique actuelle en matière d'utilisation de traceurs radio-actifs dans les applications industrielles où le produit radio-actif peut se retrouver dans un produit destiné à l'usage du public;
- pratique actuelle en ce qui concerne les quantités de radio-éléments qui sont utilisées sur l'homme pour la recherche médicale;
- appareils de mesure utilisés dans les applications des radio-isotopes à la médecine et la biologie.

Il est décidé que la Commission demandera à l'AIEA de bien vouloir se charger d'une enquête sur les trois premiers sujets. Le quatrième sujet pourrait sans doute être traité par l'Atomic Energy Commission des Etats-Unis.

8-3 *Prochaine réunion.* La prochaine réunion se tiendra, en principe, à Vienne à l'occasion de la Conférence de 1960 sur l'utilisation des radio-éléments dans les sciences physiques.

La séance est levée à 17 heures.



## V. XXth CONFERENCE AND XVIIth CONGRESS—Munich

26 August–6 September, 1959

Because of the fact that the Comptes Rendus of the XXth Conference and the XVIIth Congress will appear soon after this Information Bulletin, I shall not report here on these two very successful manifestations, in order to prevent useless repetition.

## VI. CALENDAR

1960

### January

- |       |   |             |
|-------|---|-------------|
| 7–10  | 4th International Symposium on Radioactive Isotopes (Dr. R. HOFER, 13 Garnisongasse, Vienna 9)  | Bad Gastein |
| 11–16 | 3rd Plenary Meeting of the Committee on Space Research<br>1st International Space Science Symposium (Secretariat, Paleis Noordeinde, The Hague) | Nice        |

### February

- |       |   |          |
|-------|---|----------|
| 22–24 | Congress—International Institute of Sugar-Beet Researches (45, rue de Moulin, Tirlemont/Belgique) | Brussels |
|-------|---|----------|

### February–March

- |       |  |            |
|-------|--|------------|
| 29– 4 | 11th Conference on Analytical Chemistry and Applied Spectroscopy (Dr. L. P. MELNICK, U.S. Steel Corp., Monroeville/Pa., USA) | Pittsburgh |
|-------|--|------------|

### March–April

- |       |  |        |
|-------|--|--------|
| 31– 1 | Symposium on continuous Culture of Micro-organisms<br>(Secr.: R. ELSWORTH, c/o Ministry of Supply, Microbiological Research Establishment, Porton, Salisbury/GB) | London |
|-------|--|--------|

### April

- |       |  |           |
|-------|--|-----------|
| 26    | 12th International Symposium on Crop Protection (Prof. J. VAN DEN BRANDE, Institut agronomique de l'Etat, Ghent/Belgium)                   | Ghent     |
| 27–29 | 2nd European Symposium on Chemical Reaction Engineering (P. J. HOFFTYZER, Central Laboratory, Staatsmijnen in Limburg, Geleen/Netherlands) | Amsterdam |

### May

- |      |  |            |
|------|--|------------|
| 4– 6 | International Symposium on Distillation (Institution of Chemical Engineers, 16 Belgrave Square, London S.W.1/GB)   | Brighton   |
| 4– 6 | Celebration of the Centenary of the Discovery of Applied Spectroscopy by Bunsen and Kirchhoff (Prof. K. SCHÄFER, Physikalisch-Chemisches Institut der Universität, Plöck 55, Heidelberg) | Heidelberg |

### May

- |       |   |           |
|-------|---|-----------|
| 16–17 | 44th Meeting of the IUPAC Executive Committee | Leningrad |
| 18–19 | Meeting of the IUPAC Bureau                   | Leningrad |



*May-June*

30- 4 4th International Symposium on Reactivity of Solids (R. G. VAN GIJN, Technische Hogeschool, Insulindelaan 2, Eindhoven/Netherlands) Amsterdam

*June*

8-10 3rd Symposium on Gas Chromatography (L. BRESLEY, Boots Pure Drug Co., Ltd., Station Street, Nottingham/GB) Edinburgh

14-18 International Symposium on Macromolecules (Organizing Committee, V 134, App., 18, Academy of Sciences of USSR, Moscow) Moscow

*July*

4- 9 2nd International Congress on Catalysis (Prof. G. EMSCHWILLER, Ecole supérieure de Physique et de Chimie, 10, rue Vauquelin, Paris-5<sup>e</sup>) Paris

18-26 Tercentenary Celebrations of the Royal Society (Dr. D. C. MARTIN, Burlington House, Piccadilly, London W.1) London

21-30 International Nuclear Power Exhibition (Nuclear Power Exhibition Ltd., Francis House, Francis Street, London S.W.1) London

*August*

14-19 3rd International Congress of Clinical Chemistry (Dr. S. C. FRAZER, Clinical Laboratory, Royal Infirmary, Edinburgh) Edinburgh

15-24 5th General Assembly of the International Union of Crystallography (Dr. W. H. TAYLOR, Crystallographic Laboratory, Cavendish Laboratory, Cambridge/GB) Cambridge

15-25 Symposium on the Chemistry of Natural Products (Dr. A. L. G. REES, CSIRO, Box 4331, G.P.O., Melbourne/Australia) Melbourne  
Canberra  
Sydney

*August-September*

29- 3 Colloquium on Nuclear Structure (L. G. ELLIOT, Atomic Energy of Canada, Chalk River, Ont., Canada) Kingston/Ont.

European Brewery Convention (Secr.: Crooswijkse singel 50, Rotterdam/Netherlands)

DECHEMA Annual Meeting (Deutsche Gesellschaft für Chemisches Apparatewesen, Rheingauallee 25, Frankfurt/Main)

International Association of Geodesy (Prof. M. KNEISSEL, Geodätisches Institut, Arcisstr. 21, Munich) Munich

3rd World Congress on Surface Active Agents (Deutscher Ausschuss für grenzflächenaktive Stoffe, Verband der Chemischen Industrie, Karlsstr. 21, Frankfurt/Main) Cologne

6th International Symposium on Food Additives (ERWIN GRADNAUER, International Commission for Agricultural Industries, 18 av. de Villars, Paris-7<sup>e</sup>)

- ✓ Symposium on Geochemistry (Prof. C. W. CORRENS, Sedimentpetrographisches Institut, Lotzestr. 13, Göttingen/Germany) Copenhagen
- ✓ Symposium on Tritium as a Tool in Physics, Chemistry, Biology and Meteorology (R. MORF, c/o Sandoz Ltd., Basle 13)
- ✓ Symposium on the Photochemistry of the Upper Atmosphere (R. MORF, c/o Sandoz Ltd., Basle 13) Copenhagen
- ✓ Symposium on Determination of Radioactivity of Rocks, Age Determination, on Geology and Geochemistry (G. LACLAVÈRE, 53 avenue de Breteuil, Paris-7<sup>e</sup>, et R. MORF, c/o Sandoz Ltd., Basle 13) Helsinki
- Symposium on Radioisotopes as a Tool in Microneurophysiology (Prof. A. VON MURALT, Hallerianum, Bühlplatz 5, Berne/Switzerland) Berne

### 1961

#### August

- ✓ 2-5 XXIst Conference of the International Union of Pure and Applied Chemistry (R. MORF, c/o Sandoz Ltd., Basle 13) Canada
- ✓ 6-12 XVIIIth International Congress of Pure and Applied Chemistry—physical chemistry including spectroscopy, analytical chemistry, industrial chemistry and symposia on organic chemistry (Prof. L. MARION, National Research Council, Ottawa 2/Canada) Canada
- 20-25 Gordon Research Conference New Hampton USA

#### August-September

- 27-1 5th International Conference on C-Ordination Chemistry (R. MORF, c/o Sandoz Ltd., Basle 13) Detroit

#### September

- 3-8 National Meeting of the American Chemical Society Chicago

## VII. EDITORIAL

### AWARD

Prof. J. HEYROVSKY, of the Czechoslovak Academy of Science in Prague, was awarded the Nobel Prize of Chemistry for 1959.

The Secretary General is happy on behalf of all Titular Members of the International Union of Pure and Applied Chemistry to extend his sincere congratulations to Prof. HEYROVSKY.

Prof. ANGELO COPPADORO, who is now in his 81st year, has resigned from the Editorship of "La Chimica e l'Industria".

At this occasion, this keen protagonist of international co-operation, has drafted a most interesting survey on the history of chemical publications in Italy (see "La Chimica e l'Industria"—anno XLI—agosto 1959—p. 814).

All those who are interested in the biography of Prof. ANGELO COPPADORO and who would like to have inside information on the bibliography of 177 papers he has published, are invited to write directly to the Secretary General, who shall be delighted to give them all detailed information.















**INTERNATIONAL UNION OF PURE  
AND APPLIED CHEMISTRY**

**INFORMATION BULLETIN  
NUMBER 11**

**SECRETARY GENERAL:**

**Dr. R. Morf, c/o F. Hoffmann-La Roche et Cie., SA, Bâle 2 (Suisse)**

**Butterworths Scientific Publications · London**

**October 1960**



## CONGRATULATING ADDRESS TO THE ROYAL SOCIETY

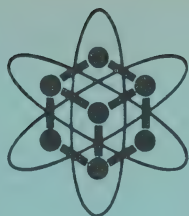
The International Union of Pure and Applied Chemistry greets the Royal Society as it celebrates its Tercentennial Year.

The Royal Society, founded during a period of political unrest and international tension, has stood firmly for freedom of scientific investigation and for co-operation among scientists of all nations. It has afforded precious initiative in the foundation of international scientific bodies and throughout has provided them with exceptional moral and material support.

The International Union of Pure and Applied Chemistry owes much to the foresight and unselfish devotion of the chemists of Great Britain, many of whom have served it officially and on whom reliance could always be placed for sound advice. The Union salutes the Royal Society as the official adhering body for Great Britain and through it it also salutes the chemists of the British Commonwealth of Nations to whom it and the science of chemistry owe so much.

No greater wish may be expressed than that the Royal Society should prosper and exert influence during the next three hundred years as it has in the past.

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## PRO SALUTE REGIAE SOCIETATIS

OPTIMA VOTA NUNCUPAT CONSOCIATIO HOMINUM DOCTORUM OMNIUM NATIONUM, QUI ARTEM CHemicAM ET IN THEORIA ET IN PRAxi EXERCENT. REGIA SOCIETAS INTER DISCORDIAS CIVILES ET INTER GENTIUM SIMILTATES OLIM CONSTITUTA NULO TEMPORIS PUNCTO INTERMISSO FIRMITER LIBERAE INDAGATIONI SCIENTIARUM OPERAM NAVAVIT. COMMUNIA STUDIA VIRO RUM DOCTORUM OMNIUM NATIONUM ALUIT ET AD EFFECTUM PERDUXIT.

SPONTE ADUNATIONES STUDIORUM INTER NATIONES COMMUNICANDORUM CONSTITUENDAS CURAVIT. INPRIMIS REGIA SOCIETAS ILLAS CONSOCIATIONES MODO NATAS EXIMIA AUCTORITATE SUA ET OPIBUS ADIUVIT.

CONSOCIATIO NOSTRA VIRIS ARTEM CHemicAM IN BRITANNIA EXERCENTIBUS IMMENSAM DEBET GRATIAM PRO SAPIENTI FORUM PROVIDENTIA ET PRO LIBERALIBUS OFFICIIS. SAEPISSIME ENIM CONSOCIATIO OFFICIALITER EORUM OPERA USA EST NEQUE UMQUAM OPTIMO CONSILIO AUT CERTISSIMIS ARGUMENTIS CONFIRMATO RESPONSO CARUIT NEQUE FIDES IN IIS POSITA UMQUAM DECEPTA EST. CONSOCIATIO HOMINUM DOCTORUM OMNIUM NATIONUM, QUI ARTEM CHemicAM ET IN THEORIA ET IN PRAxi EXERCENT, REGIAE SOCIETATI MEMBRO SUO BRITANNICO, SALUTEM DICTI PLURIMAM, NEC MINUS OMNIBUS, QUI ARTI CHemicAE IN TOIA CONFOEDERATIONE NATIONUM BRITANNICARUM, OPERAM DANT, QUIA ET IPSA ET TOTA SCIENTIA CHemICA MAXIMAM EIS DEBET GRATIAM. NIHIL MAIUS OPTAMUS QUAM UT REGIAE SOCIETATI PROSPERA CONTINGAT FORTUNA, ET UT EIUS AUCTORITAS IN ALTERA TRIA SAECULA MANEAT INVARIABILIS

MENSE JULIO MCMIX. PRAESES :

*W. Gilbert Rogers*

SCRIBA :

*Rudolf Herz*



## INTRODUCTION

Le Bulletin d'Information n° 11, le premier bulletin de cette année sans Conférence, sera distribué seulement au début du second semestre de 1960. Il couvre la période du premier semestre et fournit des informations complémentaires aux Comptes Rendus de la XX<sup>e</sup> Conférence tenue en 1959 qui ont paru en juillet 1960. Les réunions suivantes ont eu lieu depuis la publication du Bulletin d'Information n° 10:

- a) 3<sup>e</sup> Assemblée générale du COSPAR et 1<sup>er</sup> Symposium international de la Science spatiale, Nice du 11 au 16 janvier 1960.
- b) Célébration du centenaire de la découverte de la Spectroscopie appliquée par BUNSEN et KIRCHHOFF, Heidelberg du 4 au 6 mai 1960.
- c) Réunion de la Commission de Nomenclature des Stéroïdes, Bâle du 10 au 13 mai 1960.
- d) 44<sup>e</sup> réunion du Comité exécutif et réunion du Bureau, Leningrad du 23 au 27 mai 1960.
- e) 4<sup>e</sup> Symposium international sur la Réactivité des Solides, Amsterdam du 30 mai au 4 juin 1960.
- f) Symposium international sur les Macromolécules, Moscou du 14 au 18 juin 1960.
- g) Réunion de la Commission de Nomenclature organique, Scheveningue, du 6 au 11 juillet 1960

Le point culminant de l'activité de l'Union pendant le premier semestre de 1960 fut la réunion du Bureau et la 44<sup>e</sup> réunion du Comité exécutif, tenues à Leningrad du 23 au 27 mai 1960.

En vue de ces réunions, le Président NOYES a élaboré à l'intention des membres du Bureau un mémorandum très détaillé, basé sur une expérience de près de 30 années. En effet, le Prof. NOYES a assisté à presque toutes les réunions de l'Union depuis les années 30. Il trace l'historique de l'Union dans ses grandes lignes, ce qui aide à mieux comprendre l'état et la situation actuelle de l'IUPAC. La plus grande partie de cet exposé est consacrée au développement escompté dans les années à venir et la politique future.

Le Président NOYES désire encourager et soutenir efficacement les Sections et Commissions, qui sont les chevilles ouvrières de l'Union. Il a cherché également à intensifier les contacts entre les Sections et le Comité exécutif.

Après discussion de ce mémorandum et des propositions faites par le Prof. NOYES, qui ont suscité un vif intérêt parmi tous les membres du Bureau, le Président - à la fin de la réunion - a proposé de rédiger un second projet tenant compte des suggestions faites par les membres du Bureau.

La décision la plus importante prise à Leningrad, en vue de renforcer l'influence des Sections, consiste à convoquer à la prochaine réunion du Bureau, à part les Présidents, un second représentant choisi dans chaque Section par les Présidents respectifs.

Afin de donner un complément d'informations sur les problèmes traités par le Bureau et le Comité exécutif, les rapports des Présidents et quelques-unes des résolutions prises au cours de ces réunions sont communiqués ci-après.

## INTRODUCTION

Information Bulletin No. 11, the first Bulletin of this non-conference year will be distributed with considerable delay at the beginning of the second half of 1960. It covers the period of the first 6 months of 1960 and gives complementary information to the Comptes Rendus of the XXth Conference, held in 1959, which appeared in July 1960.

The following meetings took place since the publication of Information Bulletin No. 10:

- (a) 3rd General Assembly of COSPAR and 1st International Space Science Symposium, Nice, 11—16 January, 1960.
- (b) Celebration of the Centenary of the Discovery of Applied Spectroscopy by BUNSEN and KIRCHHOFF, Heidelberg, 4—6 May, 1960.
- (c) Meeting of the Commission on the Nomenclature of Steroids, Basle 10—13 May, 1960.
- (d) 44th meeting of the Executive Committee and meeting of the Bureau, Leningrad, 23—27 May, 1960.
- (e) 4th International Symposium on the Reactivity of Solids, Amsterdam 30 May—4 June, 1960.
- (f) International Symposium on Macromolecules, Moscow 14—18 June, 1960.
- (g) Meeting of the Commission on Organic Nomenclature, Scheveningen, 6—11 July, 1960

The activity of the Union in the first semester of 1960 was characterized by the meeting of the Bureau and by the 44th meeting of the Executive Committee which took place in Leningrad from 23—27 May, 1960.

Before this meeting, President NOYES had drafted a very detailed memorandum based on his experience of some 30 years. As a matter of fact, President NOYES attended most of the meetings of the Union which were held since the 1930s. The President outlined the history of the Union along the general lines which helps for the better understanding of the state and the present situation of IUPAC. The greatest part of his memorandum is devoted to the development of coming years and to future policy.

President NOYES wishes to encourage and to support the Sections and Commissions which are the basis of the Union. He also tries to intensify the relations between the Executive Committee and the Sections.

After the discussion of this memorandum and the proposals made by President NOYES, which created a lively interest among the Bureau Members, the President—at the end of the meeting—proposed to draft a second project considering the suggestions made by the Bureau members.

The concrete decision taken in Leningrad with regard to strengthening the Sections, consists in inviting to the next meeting of the Bureau not only the Section Presidents but a second representative of each Section, selected by the respective President.

In order to make information regarding the problems treated by the Bureau and the Executive Committee complete, the reports of Section Presidents and some of the resolutions taken during the meetings, are reprinted:



## SECTION PRESIDENTS REPORTS TO THE BUREAU

### REPORT OF THE PRESIDENT OF THE PHYSICAL CHEMISTRY SECTION

#### A. Meetings and Symposia

The following meetings and symposia, arranged by Commissions of the Physical Chemistry Section have taken place between the Munich Conference (August 1959) and 15 May, 1960:

*Commission on Molecular Spectroscopy* (President Dr. H. W. THOMPSON)

Commission meeting and symposium at Bologna (7—12 September, 1959). As a result of this and earlier meetings of this Commission reports will be ready within a few months on

- Infrared wavelength standards
- Presentation of data on optical rotatory dispersion
- Terminology on molecular vibrations
- Symbols and terminology for infrared and ultraviolet.

*Commission on Electrochemistry* (President Prof. M. POURBAIX)

A symposium in conjunction with CITCE (affiliated to IUPAC) was held at Vienna (29 September—2 October, 1959).

*Commission on Macromolecules* (President Sir H. W. MELVILLE)

Commission meeting and symposium at Wiesbaden (12—17 October, 1959). Reports on this meeting were received from the part of Sir H. MELVILLE and Prof. H. MARK. The items discussed included: rules for nomenclature in German, prepared by Prof. O. KRATKY; Russian nomenclature, prepared by Prof. KARGIN and reported to be ready by the end of 1959; nomenclature in Japanese reported to be ready end of 1960. Establishment of subcommittee (DESREUX, HUGGINS, MARK, NATTA) on nomenclature for stereoregulated polymers. Distribution of a narrow fraction of Polystyrene to various laboratories for comparison of molecular weight determinations.

*Joint Commission on Applied Radioactivity* (President Dr. H. SELIGMAN)

Commission meeting at Paris (27 October, 1959) during which the question of radioactive standards, questions of standard techniques and the organization of future symposia was discussed. In September 1960, a conference is scheduled on the use of radioisotopes in Physical Sciences and Industry.

*Bunsen-Kirchhoff Centennial Celebration*

Under the auspices of the Deutsche Bunsengesellschaft, the Academy of Heidelberg and the University of Heidelberg a celebration was held, sponsored by IUPAC, in commemoration of the discovery of spectral analysis, 100 years ago by BUNSEN and KIRCHHOFF. IUPAC was represented at the manifestation through Prof. W. KLEMM.

## B. Special problems

*Manual of Physico-chemical Symbols and Terminology* (President Prof. W. JOST)

The manual which has been published in English and French by Butterworths in August 1959, is, according to a communication of Prof. GUERASIMOW, going to be translated into the Russian language.

*Commission on Physico-chemical Data and Standards*  
(President Dr. E. WICHERS)

Following personal discussions and correspondence with Dr. WICHERS, a list of numerical values, including constants like the Avogadro number, the Faraday constant, the charge of the electron, etc., is going to be prepared by the Commission on Physico-chemical Data and Standards.

*Systems MKSA-CGS*

One of the problems which still need careful consideration from the part of the Physical Chemistry Section and of IUPAC in general is the question of a priority of one of these two systems. It will be remembered that a priority of the MKSA-system is recommended by a number of physicists and engineers and in particular by the ISO/TC 12. Some further development has occurred in this matter through the distribution of an ISO/TC 12 proposal concerning Quantities and Units in Chemistry. (Document 371/E, December 1959). In this proposal the main quantities and units occurring in chemistry are defined and tabulated. It is stated that this table contains for example for the volume-concentration exclusively the definition of moles per cubic metre and for the diffusion constant the definition of  $\text{m}^2 \text{sec}^{-1}$ . Other units are said to be allowed in a "special remark" in the introduction. The president of the section has written both to Prof. CHRISTIANSEN, past president, and to Prof. JOST, actual president of the Commission on Physico-chemical Symbols and Terminology; drawing the attention to the necessity that a recommendation to chemists should contain the units which they are actually expected to use and that it would be difficult to persuade chemists to express concentrations in moles per  $\text{m}^3$ . Prof. JOST is going to represent IUPAC at a meeting of ISO/TC 12 in Copenhagen from 26 June to 2 July, 1960.

*Addition made after the Leningrad Bureau-meeting*

Prof. JOST sent me by a letter of 24 May a comment of the Deutscher Normenausschuss für Chemie to the above mentioned ISO/TC 12 Proposal concerning Quantities and Units in Chemistry. The remarks of the Deutscher Normenausschuss für Chemie dated February 1960 are similar to those made by myself in the preceding paragraph.

*Remark concerning the adoption of Rules by the Council of IUPAC*

It would be desirable that the representatives of the member countries were better informed about the nomenclature and other rules which the Council is expected to adopt. The rules prepared by the Commissions should moreover before being finally adopted be presented for comments and criticism directly and personally to the leading scientists of the branch in question.

## C. Activities of Commissions and Divisions. Coordination of Activities

- (a) *Commission on Macromolecules*, Section of Physical Chemistry (Sir H. MELVILLE) and *Plastics and High Polymer Commission*, Section of Applied Chemistry (G. DRING)

Prof. Dr. W. KERN contacted G. DRING at Munich. He reported at Wiesbaden to the Commission on Macromolecules. Observers will be sent of the Physical Chemistry Commission to the meetings of the Applied Chemistry Commission and vice versa. I attended the meeting at Wiesbaden and asked that terms of reference should be specified (1) by Mr. G. DRING, (2) by Sir H. MELVILLE. None of these documents were received.

The Commission on Macromolecules and G. DRING emphasized both that an amalgamation of the two commissions was impossible, the existence of the two commissions corresponding to the existence of a section on pure (physical) chemistry and applied chemistry. Example: next symposium on plastics treats: Use of Plastics in Automobile Industry.

- (b) *Commission on Electrochemistry* (Prof. POURBAIX) and *Commission on Electrochemical Data* of the Section of Analytical Chemistry

In order to ensure close collaboration Dr. R. G. BATES, former president of the Electrochemical Data Commission of the Section of Analytical Chemistry, is going to be titular member of the Commission on Electrochemistry.

Moreover Drs. DELAHAY, HICKLING and KORTÜM, titular members of the Commission on Electrochemical Data, have been elected associate members of the Commission on Electrochemistry and MM. HAMER, POURBAIX and VALENSI, titular members of the Commission on Electrochemistry, have become associate members of the Commission on Electrochemical Data.

Signed: W. KUHN

## REPORT OF THE PRESIDENT OF THE INORGANIC CHEMISTRY SECTION

The Section of Inorganic Chemistry played a major part in the Conference at Munich in 1959 and it is natural therefore that its activities since that time should have been limited. The Commissions have, however, continued to work smoothly and as the following summary shows.

Dr. WICHERS has submitted a memorandum on the new *Carbon-12* scale of atomic weight and has asked that the views of member countries be made available not later than January, 1961. The proposed new scale will result in a single unified system for use by chemists and physicists. It will be considered by IUPAP at its General Conference in 1960 and, if approved by that body and by the member countries of IUPAC, will be formally presented at the Montreal meeting in 1961. A new table of atomic weights, based on a review of both chemical and physical data, will be available at that time.

The Commission on the *Nomenclature of Inorganic Chemistry* is considering a report on the nomenclature of boron hydrides, produced by the American Chemical Society. There is also to be a meeting of a joint-inorganic/organic sub-committee on the nomenclature of organometallic compounds. This



will be held at Scheveningen in July 1960 and will be attended by Profs. JENSEN, MALATESTA and REMY and by Dr. CHATT. The work of this Commission continue to be outstandingly useful.

The Commission on *High Temperatures and Refractories* is proposing a symposium on high temperatures as part of the Montreal meeting (1961). The papers presented at this symposium will be included in the programme of the Physical Chemistry Section and discussions are proceeding with the Canadian Organising Committee. A hall to accommodate about 300 people will be available, but, since attendance may be high, steps are being taken to define precisely the aspects of the subject to be continued. It is proposed by Dr. FOEX, the secretary of the Sub-commission on Condensed States, that consideration should be given to the publication of papers given at the Montreal meeting.

Dr. FOEX has also made a request for the publication of bibliographies compiled by his commission and this has been referred to the first place to Dr. H. W. THOMPSON. A preliminary report on the activities of the Sub-commission on Condensed States and of the Commission on High Temperatures has been received. It is noted that the main activity of these Commissions, other than the organisation of symposia, is the publication of bibliographies, on various aspects of the subject. These appear to be very useful to those concerned.

In connection with the work of the *Commission on Geochemistry*, a meeting was held in Münster on 3 March, 1960, to consider certain difficulties which have arisen. These relate to the adequacy of the funds made available to the Commission by IUPAC, the co-operation between the Commission and IUGG, the frequency of meetings organised by the Commission, and the exact scope of its activities. The meeting was attended by Profs. BELCHER, CORRENS, EMELÉUS and KLEMM and by Dr. MORF. It was pointed out that the following activities were in accordance with the Statutes of IUPAC.

- (i) the publication of tables and lists of geochemical data
- (ii) the definition and standardization of geochemical nomenclature
- (iii) the standardization and definition of methods of analysis, with a view to evaluating published analytical results.

The sub-committee did not consider that abstracting was a proper activity. The wish of geochemists to form a separate Union or Section was discussed and the meeting was in favour of a new joint-division of Geochemistry, under the auspices of the Section of Inorganic Chemistry of IUPAC. This joint division would also have close links with the Analytical Chemistry Section and, if possible, would have some form of representation of IUGG. The budget proposals of the Section were also discussed in relation to the items approved by the Executive Committee for 1960. This meeting at Münster served a very useful purpose by formulating and clarifying the difficulties of the Commission, though final recommendations cannot be made until the matter has been further discussed by the Bureau.

Signed: H. J. EMELÉUS



## REPORT OF THE PRESIDENT OF THE ORGANIC CHEMISTRY SECTION

After the Munich meeting there has been considerable correspondence about symposia on the chemistry of medicinal drugs. The Italians have proposed to hold one in Florence in 1962, to be organised by Società Italiana di Scienze Farmaceutiche, and the English have proposed to organise a similar meeting in England in 1961.

The Italians have priority and they have now given such economic guarantees that it was felt that they should be given the opportunity to hold their Florence Symposium. The Italians have stated that the economic situation is such that the Symposium would not cost IUPAC anything. As a consequence the English have withdrawn their claim for a similar symposium.

Arrangements have been made for publication of the manuscripts of the Florence Symposium in the IUPAC Journal.

A Symposium on the chemistry of natural products is being planned to be held in Prague in 1962. The present writer plans to attend the International Symposium on the Chemistry of Natural Products in Melbourne, Canberra and Sydney 15—25 August, 1960.

The very active and useful Commission on the Nomenclature of Organic Chemistry and the Commission on Codification, Ciphering and Punched Card Techniques have continued their work individually and by correspondence. Their next meeting will take place in Scheveningen, The Hague, 9—16 July, 1960 jointly with a subcommission on the nomenclature of inorganic chemistry.

A Japanese version of the IUPAC nomenclature rules for organic chemistry has appeared.

It is felt that there is at present a tendency to hold too many symposia for which sponsorship and economic support from IUPAC is claimed and that the planning of such symposia is frequently carried out without due contact with IUPAC at an early stage. This, of course, will sometimes lead to certain conflicts and cause unnecessary irritation to say nothing about the expense for IUPAC. It is also felt that in future, except perhaps in very large countries, big congresses covering the whole or almost the whole of chemistry should be avoided. Smaller, even regional, symposia sponsored by but not, or only partly, supported by IUPAC are certainly to be preferred, especially if much time is reserved for private discussions, the Gordon conferences being useful models. If big congresses are arranged in large countries it will probably be useful to divide them into sections which hold their meetings in different smaller cities. Attention should probably also be paid to the need for contacts with other sciences so that a plenary lecture is given by a representative of a neighbouring science. The "mammoth congresses" with their large banquets and extensive sightseeing programs—during the congress—seems to me to be due to the wish for national manifestations and to the great increase in the number of chemists and in the standard of living in many countries but I feel that they have a tendency to become tourist attractions more than serving the advance of our science.

Signed: H. ERDTMAN

# **REPORT OF THE PRESIDENT OF THE BIOLOGICAL CHEMISTRY SECTION**

## **(1) The Nomenclature Committee**

The President of the Commission on Nomenclature, Dr. W. KLYNE, has prepared a report on the Nomenclature of Biochemical substances. This report has been approved by all members of the Commission and has been circulated to the Section. It has also been approved by the British National Committee on Biochemistry. The Secretary General of IUPAC has a copy and the report might advantageously be circulated to some or all Sections of IUPAC, and to the Editors of journals. When finally approved, it should be published in the IUPAC journal "Pure and Applied Chemistry"..

The question has arisen as to whether it might be advantageous to invite IUB to set up a small commission on nomenclature of biochemical substances which could hold joint meetings with the IUPAC Nomenclature Commission. Alternatively, the IUPAC Commission on Biochemical Nomenclature might possibly join the corresponding commission of IUB (when set up) as a Joint Commission.

## **(2) Protein Commission**

The President of the Protein Commission, Dr. K. BAILEY, is preparing a report on the work of this Commission which it is hoped will be completed within the present calendar year.

The possibility of holding a Symposium on Proteins or Peptides in 1961 has been explored. In view of the Peptides Symposium being held before or after the Moscow Biochemical Congress, probably in Prague, it seems inadvisable to proceed with any plans for a meeting on Peptides. It has therefore been decided to approach Dr. PETERS of Bruges, organiser of previous symposia on Proteins there, to explore the possibility of the Protein Commission joining his Bruges Committee in the planning of a Protein Symposium for April or May of 1961.

If it is possible to make these arrangements, the Section of Biological Chemistry will attempt to arrange its Conference, comprising the meetings of the complete Section including its Commissions, for a few days before or after the Protein Symposium.

## **(3) The Clinical Chemistry Commission**

### *Enzyme units*

A joint sub-commission with the Enzyme Commission of IUB was set up in Vienna in 1958. This met at Starnberg in August 1959. It decided to recommend the expression of enzyme units in terms of millimoles of substrate transformed per minute, as a more scientific and more satisfactory expression of enzyme activity than any of the many different conventions at present in use. This recommendation will be given full publicity and support.

### *International Standard Samples for Testing Analytical Results*

Arrangements have been made in several countries for analytical control schemes whereby samples of biochemical fluids, e.g. freeze-dried blood plasma, ultrafiltered plasma, etc., are made available to hospital laboratories

for the checking of their analytical results for contained constituents against the known concentrations of the samples, established by accurate analysis under rigidly controlled conditions.

#### *Drugs and Toxic Substances*

The Commission has arranged for several University and hospital laboratories to test methods already published for the estimation of administered drugs and for toxic substances absorbed by workers in industry, and to investigate and invent new methods where none already exists. Further to study in collaboration with medical colleagues the concentrations at which drugs are effective and at which they become toxic, and the concentration at which industrial substances hazardous to health are toxic in the human organism.

*A Congress on Clinical Chemistry* has been organised for *Edinburgh* for the 14—19 August, 1960. This will be held under the auspices of the Clinical Chemistry Commission of IUPAC. It is the IVth International Congress so arranged.

*A Canadian-American Joint Meeting* of Clinical Chemistry will be held in Montreal at the end of August 1960. This is not officially sponsored by the Clinical Chemistry Commission, but has received our encouragement and assistance.

An invitation has been received from the American Association of Clinical Chemists and the Canadian Society of Clinical Chemists for a *USA-Canadian Congress* in a border city, e.g. Detroit or Windsor (or both) for 1963. It is hoped to make arrangements to accept this invitation.

#### **(4) Section Meetings**

*Joint Negotiating Committee with IUB.* A meeting is arranged for Cambridge in September 1960.

#### *The Section*

The President, the Vice-President and the Secretary will attend the IUPAC Conference in Montreal in August 1961.

The full Section plus Commissions hopes to meet in Western Europe, e.g. in Bruges (at the time of a Protein Symposium there), in the spring of 1961.

Signed: E. J. KING

### **REPORT OF THE PRESIDENT OF THE ANALYTICAL CHEMISTRY SECTION**

The Section presented a large number of reports at the Conference at Munich in 1959, hence further activities are still in their initial stages. The 5th report by the Reagents and Reactions Commission on "Inorganic Reactions" is nearly ready and should be available in July. The Report on "Sampling Terms" by the Terminology Commission is now ready and is being circulated to members of the Section Committee.

Because so many Section Reports, some book length, are being held up by the lack of appearance of the new Journal (it was promised to me personally that the first issue would appear in February) the Section asks for a definite statement on the present position.



A report on the activities of all the Commissions was presented some months ago.

Because my own term of office expires next year the suggestion made at Munich, that the incoming President be named to the Bureau in the preceding year has been followed. A working procedure has been formulated and has been accepted by the Section Committee. It has to be ratified by the Section in 1961. Professor DUYCKAERTS is named as the new President and he will take office immediately after the Montreal Congress.

The Section has agreed to support the Symposium on Micro-techniques being organised by Dr. A. STEYERMARK, Chairman of the Microchemistry Commission, and which is to be held at Princeton, after the Montreal Congress. The Section therefore asks for IUPAC patronage.

Great concern has been expressed within the Section at the attitude of the Canadian organisers of the Montreal Congress with regard to the place of Analytical Chemistry in the programme. This began with a letter from Prof. MARION to me suggesting that because of the STEYERMARK Symposium the Congress programme need not "carry any analytical Chemistry." Bulletin No. 10, p. 25, certainly suggests that analytical chemistry should have a one-third share of the programme. So far the Section has never taken part in a combined Conference and Congress. It has only held two meetings both in non-Conference years and it would seem that these were special invitations organised by the host country and the Section.

Finally the Section asks for a ruling on length of service of Section Committee members. The Statutes are obscure on this point and I circulated a memorandum explaining these obscurities over a year ago.

Signed: R. BELCHER

## **REPORT OF THE ACTIVITIES OF THE APPLIED CHEMISTRY SECTION**

### **(1) Fermentation Industries Division**

#### *Commission A (Fusel Oils)*

Members of the Commission are continuing their study of fusel oils, special attention being given to the application of gas chromatography for that purpose.

#### *Commission B (Dried Yeast)*

Determination of pantothenic acid in dried yeast is receiving special study by this Commission. In particular the method of liberation of the vitamin has proved somewhat troublesome; enzyme treatment is however giving promising results.

The data collected is expected to be ready for a meeting of the Commission during August 1960 in Switzerland.

### **(2) Food Division**

#### *Commission on Food Additives*

The ad hoc Committee formed to report on Food Additives is now a Commission attached to the Food Division. As such it is intending to meet



in London in September to formulate its future programme in view of the Union's agreement to its study of methods of determining Additives in Food.

#### *Commission on Trace Elements in Food*

This Commission is finalising its results on methods of determining lead and mercury in food. It is believed that a meeting of the Commission in October may well enable the investigations to be concluded.

### **(3) Oils and Fats Division**

The following studies are being actively pursued:

- (i) Solidification curves of fats.
- (ii) Determination of water in oils and fats.
- (iii) Spectrophotometric determination under U.V. of poly unsaturated acids by two methods.
- (iv) Carbonyl index by two methods.
- (v) Determination of monoglycerides by two methods.

This Division will be holding its next meeting in Bari (Italy) on 11 and 12 October of this year.

### **(4) Organic Coatings Division**

This Division has formed itself into various sub-committees. That concerned with "testing procedures" has compiled a list of practical hand tests for evaluating the hardness of organic coating films. The analytical methods sub-committee is developing certain supplementary contributions to be included with the report of Dr. PETIT on "The analysis of alkyd resins". The Chairman of the sub-committee on terminology has prepared a text containing some new views on the problem of translating matters concerning surface coating technology. This is for discussion at a meeting of the Division planned for London during September.

### **(5) Pesticides Division**

The activities of this Division have recently been confined to attempting to arrange a convenient time and place for the next International Congress on Pesticides. Formerly, these congresses had the name "International Congresses on Crop Protection" but with the change of name of the Division to Pesticides Division and in view of the fact that so many pesticide problems are common, not only to protection of crops but also to other fields in which pesticides are used, the early change of title was to be justified.

### **(6) Plastics and High Polymers Division**

This Division, since last reporting, has held a very successful symposium on "Ageing of Plastics" (Düsseldorf, October 1959) when 1900 people attended.

The various phases of the work programme outlined and discussed at the Düsseldorf meeting have been assigned to members of the Division.

The Document entitled "Classifications of High Polymers: A Review" was published early in 1960 by Butterworths Scientific Publications.

Since the Düsseldorf meeting there has been contact with 24 IUPAC National Adhering Organisations, not previously participating in the work of the Division. Five of these, namely Czechoslovakia, Hungary, Israel, Japan and Spain, have designated National Representatives. Furthermore, responses indicate that nominations are under consideration from several other countries.

The next meeting is to be held in Turin, Italy, in September 1960 in conjunction with the meeting of the Congresso Internazionale Della Materie Plastiche. The possibility of holding a symposium, jointly sponsored by the Division and the organisers of the afore mentioned Congress is under consideration. Contacts have also been made with the organising committee for the 1961 IUPAC Congress in Canada concerning the possible cooperation by the Division in sessions on plastics and high polymers as part of the scientific programme of the Congress, or as a separate symposium.

### **(7) Pulp, Paper and Board Division**

A list of national and international scientific and technical meetings in the field of this Division's work has been circularised to members of the Division. The Division is planning a symposium on Wood Chemistry for the 1961 meeting of IUPAC in Montreal. The programme committee has been set up and is actually preparing a programme at the present time.

The leading periodicals in the field in Sweden (Svensk Papperstidning), the United States of America (Tappi) and most recently Germany (Das Papier) now follow the rules prepared by the Division for publication and state this fact on the heading on their periodicals.

The Commission on Cellulose Analysis has been active and will soon have for publication methods for the determination of "Alkali-solubility of pulp" and "Alkali resistance of pulp".

### **(8) Toxicology and Industrial Hygiene**

The work of the Division has been continued by correspondence: discussions are in progress to establish a programme dealing with the application of the analysis of biological materials to the control of human exposure to toxic substances.

A first collection of 21 analytical methods for the determination of toxic substances in air (together with an introduction) has been published by Butterworths Scientific Publications. About nine new methods are now being edited for publication.

### **(9) Water, Sewage and Industrial Wastes**

Now that the report on "The re-use of water in Industry" (a contribution to the solution of the effluent problem) is in the press, the Division is planning a meeting in England when problems arising from the use of synthetic detergents, and the treatment of the waste waters of the fermentation industries will be discussed.

Signed: J. H. BUSHILL

## Projet de base de discussion concernant la possibilité de réorganiser la Section de Chimie appliquée

Le développement rapide de la science et de l'industrie chimiques provoque des répercussions très sérieuses sur la structure de notre Section de Chimie appliquée, qui se manifestent notamment par la tendance de créer sans cesse de nouvelles Divisions et Commissions. Mises à part les conséquences financières d'un tel accroissement, il est à craindre que cette Section ne devienne une hydre. A Munich, il fut décidé en principe que, dès 1961, seules subsisteraient les Divisions et Commissions ayant prouvé leur activité et proposant un programme de travail accepté par le Conseil à Montreal en 1961.

Le Bureau exprime le désir que la Section de Chimie appliquée s'organise de telle manière à éviter ce dangereux accroissement. Toutefois, si des mesures draconiennes devaient être prises, il est vraisemblable que tous ces organismes – affiliés maintenant d'une manière très étroite à l'IUPAC – se rendraient autonomes en créant de nouvelles Unions internationales et l'Union se trouverait alors dans une situation difficile. Il serait également regrettable de laisser se creuser une séparation entre la chimie pure et la chimie appliquée.

Tout en tenant compte du fait impérieux que toutes les Sections et toutes les branches de la chimie théorique sont étroitement liées à leurs applications dans l'industrie, il serait souhaitable d'examiner si une meilleure concentration des efforts et des moyens pourrait être réalisée. Par exemple, la Section de Chimie physique pourrait s'occuper des matières plastiques; la fermentation (et ses applications industrielles) serait rattachée à la Section de Chimie biologique; toutes les analyses (scientifiques aussi bien qu'appliquées) seraient assumées par la Section de Chimie analytique; toutes les questions de nomenclature et de symboles et échantillonnages seraient traitées par les Sections de Chimie physique, minérale et organique, etc.

Une telle réorganisation aurait pour conséquences: une concentration des efforts, une limitation des Commissions et Divisions et, partant, une économie considérable.

Il est bien évident que ce mémorandum ne prétend pas être une solution mais, comme son nom l'indique, il doit servir de base de discussion.

Leningrad, le 24 mai 1960

## **RÉSOLUTION CONCERNANT SYMPOSIA ET LES PUBLICATIONS**

Le patronage de l'Union internationale de Chimie pure et appliquée peut être accordé par le Comité exécutif à un symposium, etc., à condition que le but et la nature de cette manifestation aient été approuvés par la Section intéressée.

La question de la publication de n'importe quel symposium doit être traitée par le Comité de rédaction de l'IUPAC. Si ce Comité décide de ne pas publier le symposium dans le Journal «Pure and Applied Chemistry» de l'Union et si les organisateurs veulent néanmoins éditer les communications présentées, cela doit être sous leur propre responsabilité.

### **RESOLUTION CONCERNING SYMPOSIA AND PUBLICATIONS TO BE VOTED BY THE BUREAU**

The sponsorship of the International Union of Pure and Applied Chemistry may be given by the Executive Committee to a Symposium, etc., provided that the Symposium has been approved by the appropriate Section as regards its scope and nature.

The question of publications of any such Symposium shall be considered by the Editorial Advisory Board. If this Board decides not to publish the Symposium in the Journal "Pure and Applied Chemistry" of the Union, and if the organisers of the Symposium nevertheless wish to publish the papers presented, this should be their responsibility.

Each number of the Journal shall contain a list of titles of any tentative report on e.g. symbols, nomenclature, etc., issued by Commissions of the Union in the Information Bulletin, with an indication that copies may be obtained, at a price to be fixed, by the Secretary General.

Every such notice shall be accompanied by a statement stressing the tentative nature of these reports, the reason for their issue and their liability to modification in the light of comments received before the next Conference of the Union; it should also be pointed out that when such Reports are to be regarded as official they will be published in the Journal.



## I. FINANCIAL QUESTIONS

President NOYES, in the absence of the Honorary Treasurer, presented the accounts for 1959 and the budget for 1960. This budget, which aims at making substantial economies in view of the financial stress of the Conference year 1961, was accepted by the Bureau (see appendix A).

The most important activity in 1960 will be the Symposium on the Chemistry of Natural Products for which a considerable sum will be granted.

## II. RELATIONS WITH ICSU

### International Council of Scientific Unions

At the COSPAR meeting at the beginning of this year, many important and interesting reports were made from which the following excerpts might be of interest also for chemists:

#### Excerpt of the report on space research programme of the United States of America

##### *Introduction*

At the COSPAR meeting in The Hague on 12-14 March, 1959, the objectives of the United States space science programme were presented and a brief review was given of both short and longrange plans for experiments in support of the stated objectives. These objectives and the long-range plans remain essentially the same and need not be restated at this time. Furthermore, United States space research accomplishments of 1958 and before have been reasonably well covered at The Hague and elsewhere. This Report therefore will be concerned primarily with a review of results and accomplishments during 1959 and a summary of the current plans for 1960.

##### *Some results*

During 1959 four scientific satellites were successfully placed in orbit. These were Vanguard II, Explorer VI, Explorer VII and Vanguard III. Pertinent details on these satellites are summarized in Table I.

It may be noted in connection with the completion of these launchings that all  $\pm 64$  satellite experiments originally proposed by the United States have been successfully carried out. In view of the interest which has been expressed by scientists of several other nations in recording and reducing for their own purpose data from Explorer VII, and the synoptic value of obtaining such data over a wide geographical area, the United States National Aeronautics and Space Administration has asked me to announce that telemetry codes and calibrations will be made available in the near future to any scientists who have the desire and capability to use them. Requests should be made through the Space Science Board of the United States National Academy of Sciences.

One space probe, Pioneer IV, was launched successfully, passing by the moon and proceeding out into space to orbit about the sun as an artificial planet. The results obtained from Pioneer IV are summarized in Table 2.

On 17 August, 1959, a sounding rocket was launched by the US National Aeronautics and Space Administration (NASA) at Wallops Island, Virginia, for the study of upper winds and diffusion processes. The rocket, launched at dawn, carried equipment to eject atomic sodium into the upper atmosphere. It reached an altitude of 240 kilometres and the sodium cloud was visible, from its yellow fluorescence in the dawn sunlight, for hundreds of miles along the Atlantic seaboard. The growth, shape, and dissipation of the cloud was photographed from four different stations furnishing data concerning diffusion, wind, and wind shear. Values of wind velocity greater than 250 meters/sec toward the southwest were measured at altitudes above 150 km. Analysis of the data is continuing.

A second sodium flare rocket was launched successfully at Wallops Island at evening twilight on 18 November, 1959, during the COSPAR International Rocket Week. This rocket reached an altitude of 250 km. Once again the atomic sodium cloud was visible over a very wide range. Preliminary results from this experiment show an abrupt change from turbulent motion to a uniform atmosphere at about 120 km altitude, and very low wind velocities in the 200 km altitude region as compared to the August dawn firing.

On 11 and 14 September, 1959, the N.A.S.A. launched two rockets for Arctic ionospheric studies. Both launchings were successful and the experimental equipment performed well. Electron density data obtained by the CW propagation experiments were used to calibrate direct measurement devices (Langmuir probes, electron ion traps, and field meters) to be used in the instrumentation of a future satellite for studying the structure of the ionosphere.

Other successful scientific rocket launchings by the United States during 1959 included twenty-eight by the Air Force Cambridge Research Center, Geophysics Research Directorate at White Sands, N.M., Fort Churchill, Canada, and Eglin Field, Florida. Fourteen of these rocket tests were chemical release (cesium) experiments, one was a measurement of day air glow, two were magnetic field measurements (one during the International Rocket Week), five were studies of the ionosphere (one during the Int. Rocket Week), four yielded atmospheric pressure, temperature and density measurements (two during the Int. Rocket Week), and three contained spectroscopic experiments.

The Naval Research Laboratory also successfully conducted a number of scientific rocket tests including one which obtained more than sixty photographs of the solar disc at the Lyman-Alpha wavelength (some of which show excellent detail) and also recorded solar spectral intensities down to the helium region ( $584 \text{ \AA}$ ).

Another NRL rocket yielded photometric measurements of the night airglow in a variety of interesting spectra bands running from OH ( $7280 \text{ \AA}$ – $10000 \text{ \AA}$ ) to ultraviolet ( $2780 \text{ \AA}$ ) and also scanned the sky with a detector sensitive in the  $1225$ – $1315 \text{ \AA}$  extreme ultraviolet region. This latter test indicated the presence of at least seven major sources, three of which have been tentatively identified with the Pleides, Orion, and Achenar. Yet another NRL rocket measured X-rays with energies as high as 80 KEV at an altitude of  $< 43 \text{ km}$  during a class 3+ solar flare. Altogether the Naval Research Laboratory was responsible for a total of ten successful rocket experiments during 1959.

The Army Ordnance Ballistic Research Laboratory had one very successful rocket launching from Wallops Island, Virginia on 10 November (six days before the International Rocket Week), in which ion density was measured to an altitude of 1050 miles.

**Excerpt of the report on activities  
in the Union of Soviet Socialist Republics**

**Studies of Cosmic Space by Means of Artificial Satellites  
and Cosmic Rockets**

With the object of studying the upper strata of the atmosphere and other geophysical phenomena and cosmic space, three artificial Earth satellites were launched.

	<i>Launching date</i>	<i>Total weight (kg)</i>	<i>Maximum flight altitude</i>
1	2	3	4
First Soviet Earth satellite	4.10.57	83.6	947
Second Soviet Earth satellite	3.11.57	508.6 (weight of apparatus)	1671
Third Soviet Earth satellite	15.5.58	1327	1881

The main results of the investigations carried out by means of the three Soviet artificial Earth satellites are as follows:

Determination of the density of the atmosphere both by means of studying the changes in the parameters of the orbits of the sputniks, and by means of direct manometric measurements.

By means of radio-frequency mass spectrometers the ion composition of the ionosphere at altitudes up to 840 kilometres has been studied for the first time. The measurements showed that above 250 kilometres the atmosphere has a mainly atomic composition with the prevalence of ions of atomic oxygen. A noticeable concentration of ions was found at altitudes of about 1000 kilometres, a fact speaking of a considerably greater extension of the atmosphere than previously supposed.

Radio observations of the first earth satellites showed that the electronic concentration above the maximum of ionization decreases at a rate which is 5-6 times slower than the increase in these concentrations below the maximum. This agrees with the results of the rocket investigations. For a considerable period of time the concentration of positive ions was directly measured by means of ion traps. At an altitude of 795 kilometres the summary concentration of positive ions was found to amount to  $1.6 \cdot 10^5$  ions per one cubic cm.

The tension of the magnetic field of the Earth was measured by means of a magnetometer set up on the third satellite. The analysis of the data obtained showed the existence of short and rapid changes of the magnetic field coinciding in time with the passing of the sputnik through layer F2 of the ionosphere, a fact which probably shows the presence of current systems in the upper strata of the atmosphere. Some other information on the magnetic field has also been obtained.

Piezo gauges registered the frequency of the shocks dealt by micrometeors as  $1.7 \cdot 10^{-3}$  shocks to one square metre per second. A short period with an increased number of shocks (up to 22 shocks to one square metre per second) was noted at an altitude of 1700-1880 kilometres). The overwhelming majority of the particles registered possessed an energy of about  $10^4$  erg and a mass of about  $10^{-9}$  gr.



By means of fluorescent gauges and photographic amplifiers set up in satellite III, electronic flows were registered, whose intensity increased with altitude and over high geomagnetic latitudes. It may be supposed that the energy of the electrons constituted about 10 kev. It is important to note that the intensity of the electronic flows observed was sufficient to create X-ray radiation whose protracted effect could be dangerous for living creatures.

The counters set up on the second artificial satellite made it possible to determine the dependence of the intensity of the primary cosmic radiation on altitude and geographical latitude and longitude. It was found that at medium altitudes the intensity of cosmic radiation rises by about 40 per cent when the altitude is changed from 225 to 700 km. Short periods of fluctuations in the intensity of cosmic radiation have been observed. The lines of the permanent intensity of cosmic radiation were found to be non-coincident with the geomagnetic parallels.

The apparatus for the study of cosmic rays set up aboard the third satellite ensured—apart from the measurements of the total intensity of these rays—the registration of photons and atomic nuclei of heavy elements in cosmic radiation.

The medical and biological experiment concerning the vital functions of a living organism, carried out on the second sputnik, gave valuable information on the behaviour of the animal under conditions of cosmic flight. The analysis of the data obtained makes it possible to assert that the animal stands in a completely satisfactory manner the orbiting of the sputnik when the overcharge is considerable. The condition of imponderability also failed to cause any essential and lasting changes in the physiological activity of the animal. Thus it may be considered as established that the animal withstands cosmic flights in a satisfactory manner.

The launching of cosmic rockets was the next stage in the scientific exploration of the cosmic space and the geophysical phenomena taking place there.

	<i>Date of launching</i>	<i>Total weight of scientific and measuring devices</i>
Cosmic rocket I	2.1.59	361,3 kg
Cosmic rocket II	12.9.59	390,2
Cosmic rocket III	4.10.59	435

The basic results of the investigations carried out by means of cosmic rockets are as follow:

- measurement of the intensity of primary cosmic rays as well as X-rays and gamma-rays in interplanetary space
- determination of the composition of the charged particles in cosmic space
- detection and study of the outer belt of intense radiation with a maximum of intensity at the distance of four radii from the centre of the Earth
- discovery of a system of non-ionospheric currents at an altitude of about 3–9 terrestrial radii
- quantitative measurement of the magnetic field near the Earth and in cosmic space showing that there is no noticeable magnetic field near the Moon.



## International Atomic Energy Agency

### Conference on the Use of Radioisotopes in the Physical Sciences and Industry

September 1960

#### 1. *Extract from the letter of the Director General of the International Atomic Energy Agency introducing the Conference:*

"... The purpose of the conference will be to bring together, from all over the world, specialists in the various scientific disciplines who are interested in the uses of radioisotopes in the physical sciences and industry; to enable them to submit the results of their research work, and to exchange information and comment on a series of subjects in which developments are taking place at a particularly rapid pace."

#### 2. *List of topics to be covered by the Conference*

- (1) Production of Radioisotopes
  - (a) Separation and enrichment techniques essential for the production of radioisotopes;
  - (b) New or improved production techniques (reactors and cyclotrons) (fast neutron reactions, secondary neutron reactions, "burning out" reactions, triton reactions, new target materials, Szilard-Chalmers techniques);
  - (c) New or improved processing techniques.
- (2) Preparation of labelled compounds and problems related to it.
- (3) Recoil chemistry.
- (4) Radioisotopes in organic chemistry.
- (5) Radioisotopes in analytical chemistry, including isotope dilution techniques.
- (6) Radioisotopes in physical chemistry.
- (7) Radioisotopes in physics of metals.
- (8) Radioisotopes in nuclear physics studies.
- (9) Radioisotopes in geophysics and archeology.
- (10) Industrial applications of radioisotopes (except strong [large] sources).
  - (a) Tracers
  - (b) Application using penetration, absorption and scattering radiations
- (11) Special and general problems suitable for radioisotope application.

#### 3. *Participation*

Participants can be accepted only when nominated by their Governments (Member States of the Agency), or by invited international organizations. The Agency does not pay the travel and other expenses of the participants.

#### 4. *Correspondence*

The list of persons nominated and the abstracts should be sent to the Director General of the International Atomic Energy Agency, Kärtnerring, Vienna I, Austria. Any other correspondence (including selected papers) should be addressed to:

Secretariat of the Conference on Use of Radioisotopes  
in Physical Sciences and Industry  
International Atomic Energy Agency  
Kärtnerring  
Vienna I, Austria.

Forms can be obtained from the Secretariat of the Conference.

Further information (including the detailed program) will be circulated among the participants at a later date.

### III. RELATIONS WITH MEMBER COUNTRIES

The Secretary General has been informed that the addresses of the following member countries have changed and that all correspondence should henceforth be directed to:

Finland	Dr. J. LARINKARI Suomen Kemistien Valtuuskunta P.O. Box 58 Helsinki
Netherlands	Chemical Council for the Netherlands Dr. A. STAVERMAN Fruinlaan 6 Leiden
Poland	Prof. T. URBANSKI Polytechnic School Koszykowa Street 75 Warsaw
Rumania	Prof. C. D. NENIȚESCU President of the Academy of Sciences Calea Victoriei 125 Bucarest

#### Japan

The Science Council of Japan informed us about the following elections:

President	Dr. KIYOO WADATI Director Meteorological Agency Ministry of Transportation
Vice-Presidents	Prof. TAKEO KUWABARA Director Research Institute for Humanistic Studies Kyoto University Dr. MASAO YAMAGATA President Nippon Kaiji Kyokai (Japanese Association for Maritime Affairs)

#### USA

Since 1st July, 1960, Prof. R. C. Elderfield has taken over the chairmanship of the Division of Chemistry and Chemical Technology—National Research Council—Washington.

#### Viet Nam

Professor LE-VAN-THOI, President of the Chemical Society of Viet Nam, has written to the Secretary General, applying for the membership of Viet Nam to the Union.

This application was submitted to the Executive Committee and the Bureau during their meetings in Leningrad, in May 1960, and it was decided to request further information about the importance and the activity of chemistry in this country.

**Le Secrétaire Général à tous les délégués nationaux  
qui ont assisté à la XX<sup>e</sup> Conférence**

N° 4032

*Chers Messieurs,*

Depuis fort longtemps déjà, le Secrétaire Général estimait que les délégués nationaux pourraient ne pas trouver les délibérations des réunions du Conseil de l'IUPAC très attrayantes et assez intéressantes. En outre, l'innovation – instaurée à Munich pour la première fois – consistant à séparer le Congrès de la Conférence, pourrait empêcher les délégués, invités pour la réunion du Conseil seulement, d'organiser un emploi judicieux de leur temps. Je crois que quelques-uns des inconvénients prévus se sont réalisés.

On ne pourra rendre les futures conférences plus intéressantes pour les délégués nationaux qu'en demandant – à ceux qui sont déjà très actifs – un surcroît d'effort afin d'offrir un programme alléchant aux délégués nationaux.

Comme premier pas dans ce sens, les Professeurs LETORT et TISELIUS ont été chargés de faire un rapport qui fut soumis au Bureau, dont copie vous est adressée sous ce pli. Cela nous aiderait grandement si les délégués nationaux pouvaient nous communiquer leurs expériences lors des réunions du Conseil et nous faire part de leurs doléances et commentaires. Je leur saurai également gré de me soumettre des propositions tendant à rendre les prochaines conférences plus attractives.

J'aimerais en particulier, pour la prochaine Conférence à Montreal, connaître au plus vite votre réponse à la question suivante:

«Est-il souhaitable de convoquer le Conseil pour une réunion de toute une journée, au lieu de deux réunions séparées par trois jours d'intervalle?»

Une telle innovation représenterait pour les délégués nationaux une économie considérable de temps.

En vous remerciant d'avance très vivement de vos conseils, je vous présente, chers Messieurs, mes salutations les meilleures.

Bâle, le 16 juin 1960

RUDOLF MORF

CC. à tous les pays membres pour information.

**The Secretary General to all the National Delegates  
who have been present at the XXth Conference, 1959**

Nr 4032

*Dear Sirs,*

Long before the XXth Conference, the Secretary General found it necessary to draw the attention to the fact that National Delegates to the Conference might find the deliberations at the Council meetings of IUPAC not very attractive and not interesting enough. Also the innovation practised for the first time in Munich, to separate the Congress from the Conference, might prevent those Delegates who are only invited for the Council meeting from making good use of their valuable time. I do believe that some of the anticipated disadvantages have realised.

The aim of making future Conferences more interesting and more attractive to the National Delegates can only be achieved by asking those who are already very active to make additional efforts in order to offer an attractive programme to National Delegates.

As a first step towards a good solution, Profs. LETORT and TISELIUS have been charged to make a report which was submitted to the Bureau. I have the pleasure to send you this report in the enclosure. It would be of great help to us, if National Delegates told us about their experience at the Council meetings and if they let us have their complaints and comments. I also would be very much indebted for any proposal, aiming at making future Conferences more attractive.

In view of the forthcoming Conference in Montreal, a specific question should be answered without delay:

Is it advisable to convene the Council of IUPAC for only one full-day meeting instead of two separate meetings with a three days interval?

Such an innovation would result in considerable economy of time for National Delegates. Thanking you in advance for your valuable help, I remain. Very sincerely yours

RUDOLF MORF

Basle 15th June, 1960

cc: To the National Adhering Bodies for information

### **Sur les moyens d'intéresser davantage les délégués nationaux aux Conférences de l'IUPAC**

C'est une décision très heureuse que d'avoir dissocié la Conférence de l'Union du Congrès organisé sous ses auspices par le pays invitant. Cependant, dans ces conditions, les délégués nationaux sont amenés à séjourner quelques jours dans la ville où se tiennent Conférence et Congrès, sans avoir d'autre occupation que de siéger à deux réunions du Conseil qui se tiennent ordinairement à quelques jours de distance, soit au début et à la fin de la Conférence.

La question a été posée d'aménager un emploi du temps plus substantiel pour les délégués nationaux afin de les intéresser plus profondément aux affaires de l'Union.

Les suggestions suivantes sont faites afin de résoudre cette question:

1° recommander aux pays membres de désigner des délégués nationaux qui soient déjà bien informés des affaires de l'Union;

2° d'organiser le calendrier de la Conférence de sorte que les réunions du Conseil soient aussi rapprochées que possible, la solution extrême dans ce sens étant de ne tenir qu'une seule réunion du Conseil;

3° sans compétition avec le Congrès et avec l'accord des organisateurs de celui-ci, d'inviter un savant particulièrement éminent à faire une *conférence destinée aux délégués nationaux* sur un sujet général d'actualité et ses répercussions sur les travaux de l'Union;

4° d'organiser une conférence d'un membre de l'Union en présence des Présidents de Section ayant pour but d'exposer aux délégués nationaux les points les plus saillants des activités de l'Union: ses buts, ses moyens, problèmes posés et résultats acquis; il serait bon à ce propos que chacun des Présidents de Section ait la possibilité de prendre la parole, s'il le désire, sur les questions particulières à sa Section;

5° d'autoriser les délégués qui seraient intéressés à assister à des séances de Commission pour lesquelles ils auraient personnellement compétence;

6° recommander au pays invitant d'organiser pour les délégués nationaux qui seraient intéressés quelques visites d'Universités, d'Instituts ou laboratoires de recherches, d'usines, etc.

M. LETORT    A. TISELIUS



## **Means and way to interest National Delegates more profoundly in IUPAC Conferences**

The decision to have a conference of the Union separated from the congress organised under the auspices of the inviting country, proved to be good. However, under these conditions, the National Delegates have to stay in the town where the conference and the congress will take place, without having any occupation other than being present at two meetings of the Council. These ordinarily take place at intervals of some days, i.e. at the beginning and at the end of a conference. The question arises as to how a more substantial timetable could be planned for National Delegates in order to interest them more profoundly in the affairs of the Union.

The following suggestions have been made with the aim of resolving this question:

(1) That it be recommended to member countries to nominate such National Delegates who already are acquainted with the affairs of the Union.

(2) That a calendar of a conference should be established in such a way that the meetings of the Council are held at very short intervals; an extreme solution would be to hold only one Council meeting.

(3) That, without competition with the congress and in agreement with the organisers of the congress, a prominent scientist should be invited in order to hold a special lecture for the National Delegates on a general subject having actuality and its consequential effects on the work of the Union.

(4) That a lecture of one member of IUPAC should be organised in the presence of the Section Presidents and with the aim of drawing the attention of National Delegates to the remarkable features of the Union: its aims, its means, its problems and achievements. It would be desirable if each Section President could have the possibility, if he so wished, to take the floor and to treat with the particular problems of his Section.

(5) That those National Delegates who are interested in attending meetings of Commissions which treat problems related to their own fields of interest should be authorized to participate.

(6) That the inviting country should be advised to organise some visits to universities, institutes, research laboratories, industrial works, etc.

M. LETORT    A. TISELIUS

### **Hereafter I shall let you have some replies which I received to my circular letter No. 4032 of 15 June, addressed to National Delegates:**

"Thank you very much for your letter of 15 June concerning the problems which have arisen in connection with separating the Conference of IUPAC and the Congress. Since the Conference in Munich was the first I had attended, I am not able to compare that type of meeting with those which had been held earlier. However, I may say that I was a little disappointed when I was in Munich to find that there was little for me to do between meetings of the Council. I should like very much to have attended some of the meetings of Commissions, but was not invited to do so. I think, therefore, that Suggestion No. 5 in the report of Dr. LETORT and Dr. TISELIUS is a very good one. I also like their Suggestion No. 6 that some form of visits to scientific institutions be arranged. By far the best plan, however, is to combine their Items 5 and 6 with some plan of shortening the Conference as much as possible, that is, of having the two Council meetings close together. This not only would be more interesting to the delegates, but would

save a considerable amount of money, for living in a hotel in a foreign country is always expensive."

"I have read your letter 4032 with appendix K regarding the LETORT-TISELIUS proposals. I make the following comments:

(1) It has always been British practice, in my experience to appoint as National Delegates people who are already acquainted with, and interested in, the affairs of the Union.

(2) I am doubtful about the wisdom of holding only *one* Council meeting. When people from all over the World meet together so rarely, and when some of the business may be controversial, it is in my view more desirable to hold a first meeting at which proposals can be first considered and discussed, and a second later meeting after Delegates have had time to reflect upon the arguments they have heard before coming to a vote.

I think that to bring people together for a single meeting would be undesirable, expensive and unsatisfying.

Also, perhaps the most important thing of all is that members in different countries should have sufficient time to get to know each other better and to create an atmosphere of co-operation and mutual understanding.

(3) I see no argument against having a lecture by either a prominent scientist or a member of IUPAC, although in many cases this occurs already.

(4) I should welcome 'visitors' to my own Commission and indeed during the past four years have followed this policy. The result has been that a wider circle of scientists know our general aims.

(5) Visits arranged locally to interesting laboratories, etc., are obviously useful.

I think that one of the most valuable and stimulating parts of the IUPAC meetings which I have attended has been the opportunity to meet scientists from different countries, working in fields other than my own. If the IUPAC meetings were to become more like any other scientific congress or symposium, they would lose their character. As far as the Council is concerned, it is most desirable that no impression shall be created that the decisions of policy are always to be taken by the Officers. If only one meeting is held, there may be a danger that Delegates will feel that they are only a rubber stamp."

"I feel that despite the expense involved there is considerable argument in favour of having two days of council meetings separated by a day or so for discussion and further development of activity. I would, therefore, recommend that for the Montreal meeting no change be made with regard to council meetings. It may well be that at the Montreal meeting some modified procedures may be developed and certainly I think this whole matter should receive further discussion."

"Replying to your memorandum of 15 June, I consider the recommendations of Professors LETORT and TISELIUS as thoughtful and wise, and probably practical. I have serious doubts as to the advisability of convening the Council of IUPAC for only one full-day meeting instead of two separate half-day meetings. It has been my experience that the interval is very desirable and practically necessary to permit the Delegates to obtain the necessary information and to crystallize their thoughts. If this were simply a national meeting, the situation would not be so difficult. However, with so many nations represented, more time is needed to give the matters adequate attention."

"I feel that in general one full-day meeting instead of two meetings would be adequate; if absolutely necessary a half-day meeting just before or after

the full-day meeting could be included. The information and the points of discussion from the first meeting could be handed out in print to the delegates.

With respect to the points in appendix K I would wish to stress the necessity that the days of council and commission meetings of the conference should be as close as possible to the days of the congress if the latter is organized in the same country in the same period.

I feel that point 5 may cause very great difficulties for the work to be done in the commission meeting unless these guests were not allowed to speak unless specially invited by the president. Even so, it would change the character of these meetings very much if indeed a somewhat larger number of delegates would be present. The commission could no longer just sit around a table but speakers would have to stand up for a (small) auditorium. I would like to see point 5 omitted. However, it might be useful to recommend that members of commissions would also serve as national delegates."

"I have a copy of your letter of 15 June concerning the scheduled meeting of the Council of IUPAC at the Montreal Conference, and I should like to suggest that the matter be handled exactly as it was in Munich. The three-day interval between meetings of the Council provided just enough time to give full consideration to the nominations, proposals, and proposed actions of the commissions and officers, and I should not like to see this time shortened. I believe that delegates of the IUPAC Conferences should be willing to take their responsibilities seriously enough to be willing to devote at least this much time to the business to the Council. To compress all of the business within one day would seem to guarantee inadequate consideration and premature action on the question which will come before the Council."

"In reply to your inquiry of 15 June I should like to say:

To separate the Conference from the Congress is a very great advantage, as it is not possible for those Committee Members who do have Committee meetings to attend at the Congress meetings. But as there are a number of Delegates who are not working in Committees, *it would be a great advantage* to have only *one* Council Meeting, *after* the Committee meetings and immediately before the Congress.

I know that at some Conferences it was tried that Committees who had one or more Members in common, should not meet at the same time. This can never succeed 100%, but I fear that in München the situation was rather bad in this respect. There was even a joint Committee meeting at the same time as the Council meeting. Some of us came rather early to München and found the preliminary schedule altered and we had nothing to do for a couple of days.

The Council meeting would also be more attractive to the Delegates if the English language was more used and not the French, which, although an official language of the Union, certainly is understood only by a minority of the Delegates. With the Council meeting after the Committee work, the latter can start on different days in the various Committees, and it is up to the several Chairmen to decide how much time they believe their Committee will require to finish its work.

I subscribe fully to items 1 and 2 of the report of Drs. LETORT and TISELIUS. Items 3 and 4 might be good, but I think their effect should not be overestimated. Item 5: In some Commissions was believed that anybody interested had the right to attend the meetings. Is that wrong? Item 6: If such visits fall before the Conference, they cannot be attended by those



Commissions who have much work and therefore start early, and after the Conference they will clash with the Congress, so I am afraid that will not work. Perhaps such visits could be made on the day before the Council meeting. Secretaries will then have a day for preparing their Commission reports to the Council. No Commission meeting should be scheduled on that day, but it serves as a reserve day for Commissions who needed more time than anticipated."

"Je vous accuse réception de votre lettre du 16 juin adressée aux délégués généraux qui ont assisté à la XX<sup>e</sup> Conférence.

Vous me demandez s'il est préférable de convoquer le Conseil pour une réunion de toute une journée ou d'organiser deux réunions qui seraient séparées par trois jours d'intervalle.

Une réunion de toute une journée constituerait un avantage économique indiscutable, mais un très grand désavantage pour les échanges des réunions séparées par un intervalle d'un ou deux jours. »

"We think that it would be very desirable to carry out suggestion 1 of Appendix K. We believe, however, that this will be difficult, especially for countries which are small and comparatively isolated. Speaking for our own country, we have to point out that it cannot pay the travel expenses of its delegates, and has therefore to choose suitable delegates from among those of its chemists who happen to visit the Congress, or are near the place of the Conference meeting for some other reason. It would be practically impossible for our country to appoint permanent delegates.

We therefore feel that other means have to be found to make such delegates acquainted with IUPAC and its aims, to help them in understanding the proceedings and give them the feeling of more active participation. We think that suggestions 3 to 5 would be very helpful in this direction. The same is true of suggestion 6: not only should it make the stay of the delegates in a foreign town more interesting, but it should also keep them from feeling useless and isolated, and help them to make contacts with other delegates.

As for suggestion 2, we do not feel that it would be desirable to convene the Council for one full-day session instead of two separate meetings with a few days' interval. This would eliminate the advantages of suggestions 3 to 6, and would give the delegates even less opportunity to make themselves acquainted with the problems with which they have to deal."

## **Le Secrétaire Général aux Pays membres**

*Objet: Augmentation des contributions annuelles payées par les pays membres*

*Chers Messieurs,*

Lors de la XX<sup>e</sup> Conférence, la résolution suivante a été prise concernant l'augmentation des cotisations annuelles payées par les pays membres:

« que le Bureau de l'IUPAC soit chargé d'augmenter les subventions annuelles pour 1961 conformément aux réponses que nous recevrons des pays membres aux recommandations du Comité des Finances ».

Tenant compte de cette demande, le Bureau, lors de sa dernière réunion, a décidé:

1<sup>o</sup> d'accepter le nouveau barème des cotisations annuelles proposé par le Comité des Finances de l'IUPAC



2° d'appliquer, à partir du 1<sup>er</sup> janvier 1961, cette augmentation des cotisations annuelles; le délai pour le paiement sera prorogé à fin 1961.»

*Nouveau barème proposé par le Comité des Finances*

Catégorie C	contribution annuelle	\$ 450
Catégorie B1	contribution annuelle	\$ 800
Catégorie B2	contribution annuelle	\$ 1.600
Catégorie A1	contribution annuelle	\$ 2.600
Catégorie A2	contribution annuelle	\$ 5.000
Catégorie A3	contribution annuelle	\$ 10.000

Le nombre des voix restant inchangé

Cette décision est communiquée à tous les pays membres en les priant de bien vouloir choisir la catégorie qu'ils estiment appropriée et d'en informer le Trésorier, Sir CHARLES DODDS, M.V.O., Courtauld Institute of Biochemistry, The Middlesex Hospital Medical School, London W.1.

Il peut être intéressant de faire remarquer ici que, devant la décision du Bureau, deux pays membres ont volontairement augmenté et déjà payé leur cotisation annuelle non seulement pour 1961, mais pour 1960: un pays membre de la catégorie A a bien voulu élever sa contribution de \$1.300 à \$5.000; l'autre pays membre, également de la catégorie A, a porté sa cotisation de \$1.300 à \$2.600.

Veuillez agréer, chers Messieurs, mes salutations les meilleures.

Bâle, le 29 juin 1960

RUDOLF MORF

CC. aux membres du Bureau, pour information.

**The Secretary General to all Member Countries**

*Re: Increase of annual contributions by Member Countries*

*Dears Sirs,*

At the XXth Conference in Munich, the following resolution was taken regarding the increase of annual subventions by Member Countries:

“That the Bureau of IUPAC be empowered to increase the annual subventions for 1961 to such an extent as will be stipulated by the National Adhering Bodies when they reply to the recommendations of the Finance Committee.”

Subsequently the Bureau, taking care of this request at its last meeting in Leningrad, decided:

- (i) That the new scale of annual contributions as proposed by the Finance Committee of IUPAC shall be accepted
- (ii) That this increase of annual contributions shall enter into force on 1 January, 1961. The date of payment will be extended until the end of 1961.”

*Scheme involving an increase in the number of categories in the Union, proposed by the Finance Committee*

Category C	annual contribution Dollars	450
Category B1	annual contribution Dollars	800
Category B2	annual contribution Dollars	1 600

Category A1	annual contribution Dollars	2 600
Category A2	annual contribution Dollars	5 000
Category A3	annual contribution Dollars	10 000

The number of votes should be as hitherto

This decision is communicated to all the Member Countries with the request to choose the category they think appropriate and to let the Honorary Treasurer, Sir CHARLES DODDS, M.V.O., Courtauld Institute of Biochemistry, Middlesex Hospital Medical School, London W.1, know about the chosen category.

It might be interesting to know that already before the decision of the Bureau 2 Member Countries have voluntarily increased their annual subventions not only for 1961 but already for 1960, and appropriate payment has been received. One Member Country of category A has voluntarily increased its payment from \$1300 to \$5000; another Member Country of category A has also voluntarily increased its payment from \$1300 to \$2600.

28th June, 1960

Signed: R. MORF

cc: To all Bureau Members for information

#### **IV. ACTIVITIES OF THE UNION THROUGH THE SECTIONS AND COMMISSIONS**

##### **Résolutions du Symposium international sur les limites tolérables des substances toxiques dans l'Industrie**

Prague 14-17 avril 1959

I. - Principes généraux concernant les concentrations maximales tolérables des substances toxiques dans les atmosphères industrielles

1<sup>o</sup> Considérant que l'adoption à l'échelle internationale d'une liste unique de valeurs acceptables du point de vue de l'hygiène, pour les concentrations maximales tolérables de substances toxiques dans les atmosphères industrielles serait de nature à assurer le plus largement leur application, le Symposium recommande à la Sous-Commission spécialisée de la Commission internationale permanente pour la Médecine du Travail, d'établir et de soumettre à une revision continue de telles listes de «concentrations maximales tolérables», dont les chiffres adoptés pour chaque substance soient basés sur les informations les plus adéquates pouvant être obtenues dans la bibliographie scientifique des différents pays.

2<sup>o</sup> Le Symposium recommande que, par «concentration maximale tolérable», on entende, pour une substance déterminée, la concentration moyenne dans l'air ne provoquant, sauf cas d'hypersensibilité chez aucun des ouvriers exposés de façon continue en raison de leur travail journalier, aucun signe ou symptôme de maladie ou de mauvaise condition physique pouvant être mis en évidence par les tests les plus sensibles acceptés internationalement.

3<sup>o</sup> Le Symposium recommande que les maximums de concentration tolérables soient utilisés comme guides seulement pour l'élimination des risques de maladies professionnelles, et ne soient pas considérés comme des

lignes de démarcation tranchées entre les concentrations inoffensives et les concentrations dangereuses. Ils doivent être appliqués seulement par des spécialistes de médecine du travail et d'hygiène industrielle.

4° Le Symposium recommande que l'application des maximums de concentration tolérables soit effectuée avec une particulière attention dans certains cas, parmi lesquels il faut citer: un degré élevé d'exposition de courte durée, même s'il n'entraîne pas un dépassement de la valeur moyenne acceptable, des conditions d'ambiance défavorables; l'intervention d'agressions d'ordre émotionnel ou physique, la possibilité d'effets synergiques ou antagonistes entre une ou plusieurs substances, l'éventualité de pénétration de la substance toxique dans l'organisme par d'autres voies d'absorption que la voie pulmonaire, telles que la voie cutanée et la voie digestive.

5° Le Symposium recommande que la Sous-Commission chargée de l'établissement des tableaux de maximums de concentration tolérables à usage international, se tienne en étroit contact avec des organisations telles que le Bureau International du Travail, l'Organisation Mondiale de la Santé et l'Union Internationale de Chimie Pure et Appliquée.

II. - Méthodes utilisées pour fournir les informations nécessaires en vue de proposer des concentrations maximales tolérables.

III. - Maximums de concentration tolérables dans les milieux biologiques.

IV. - Importance des méthodes adéquates d'analyse physique ou chimique.

## **A. Chemical Engineering and the Applied Chemistry Section**

(Proposal and Draft submitted by the Section President)

Following receipt of the report of Mr. JULIAN LEONARD (Information Bulletin No. 8, page 20), the Executive Committee decided to extend further the enquiry (Executive Committee Minute 3, August 1959) and to appoint a much larger working committee. At the request of President NOYES a few independent enquiries have been made to supplement his own on the above subject. The results of these and previous enquiries may be summarized in the following three comments:

(i) The definition of "Chemical Engineer" varies from one country to another; it is applied to scientists with widely different training and therefore with different viewpoints. While some "Chemical Engineers" have a definite chemical bias, others have interests and associations well outside the normal range of Applied Chemistry.

(ii) While Chemical Engineers in USA show no great enthusiasm for participation in international chemical engineering activities, the JULIAN LEONARD Committee (which was mostly European) considered that "something should be done to give Chemical Engineering greater stature by the formation of some association to look after its interests throughout the world."

Incidentally there already exists a European Federation of Chemical Engineering having a different structure from IUPAC as its membership is limited to societies.

(iii) In view of comment (i) it is perhaps understandable that there has been no enthusiastic acceptance by Chemical Engineers of representation under IUPAC comment (ii). Still more is it understandable that Chemical Engineers would consider themselves out of place in the Applied Chemistry Section. If Chemical Engineering is to find a place in the IUPAC organisation it seems appropriate *that it might be as a separate Section.*



## **B. Industrial Chemistry and the Applied Chemistry Section**

It is understood, according to Minute 3 of the Executive Committee, August 1959, that, if only for financial reasons, there is a desire to interest a wider range of Industry in IUPAC than is at present represented by the Division of the Applied Chemistry Section. Such widening of interest may possibly be achieved by providing a service but it must be with due regard to the limitations of cost. With that in mind the first of the following two suggestions has already received some thought (Information Bulletin No. 7, page 19), while the second is a possible future development of the Applied Chemistry Section.

(i) IUPAC might provide a focus for the many miscellaneous International Congresses of a Chemical nature which are held throughout the world. This, in the first instance, could be effected by rationalising the dates of the Congresses. Possibly the office of the Secretary General could undertake this, but if the Applied Chemistry Section were required to function in this way it may be preferable to rename that Section the "Industrial Chemistry Section" as that title implies its interest is wider than that defined by the existing Divisions.

(ii) If the present policy concerning the development of the Applied Chemistry Section continues unchanged the number of Divisions will increase as new industries (or disciplines) find a need for international agreements. Although such development is proceeding at a steady pace (Divisions concerned with Corrosion and Carbon are now envisaged, see Information Bulletin No. 8, pages 52-54), it is problematical whether the older industries are likely, under the present conditions, to use the services of IUPAC. This is largely due to the fact that most of the well established industries have formed national organisations, many of which already have limited international associations.

Such international associations are interested to varying extents in participation in IUPAC activities. Some are fearful that by becoming a Division of the Applied Chemistry Section they may lose their identity. An exception to that however was an Oils and Fats International Association which had a successful 17 years before becoming the Oils and Fats Division.

If IUPAC is to interest a wider range of Chemical Industry it must first make contact with the above mentioned "international associations" and demonstrate that it can assist them to obtain the more widely accepted international agreements which they need.

A possible means of providing a suitable link between IUPAC and these international associations is for each to have a representative on the Applied Chemistry Section Committee. Such might well be a first step towards their fuller participation in IUPAC (see item C).

## **C. Possible Changes in the Organisation of the Applied Chemistry Section in View of Item B**

Hitherto Commissions attached to this Section have been disbanded when their allotted tasks have been completed. Division Committees, on the other hand once formed have remained and have steadily increased in numbers.

If this growth is not to exceed the Union's financial resources one might possibly consider means by which a Division Committee which has completed some essential task could be disbanded except for the Chairman and Secretary. The Division would then remain in being and could form a committee again when the occasion demands.



Representatives of "international organisations" on the Section Committee could in a similar way initiate the formation of a Division Committee when needed (see item B).

In the Applied Chemistry Section at the present time there are no Commissions unattached to Divisions. It should nevertheless be advisable to make provision for such a possibility as Applied Surface Activity Commissions may be attached to this Section. It is suggested that the Chairmen of such Commissions should be members of the Section Committee.

If the above mentioned suggestions together with those in item B, are incorporated in the Applied Chemistry Section, it would change its name and have the following composition:

### **Industrial Chemistry Section**

#### *Section Committee*

President

Vice President

Secretary

Assistant Secretary (duties chiefly concerned with International Congresses) (B) (i)

Chairmen of Active Divisions (Titular members)

Chairmen of Skeleton Divisions (Associate members)

Chairmen of Commissions not attached to Divisions (Titular members)

"International Associations" representatives (Associate members)

#### *Divisions (active)*

(a) With no Commissions—maximum of 8 Titular members

(b) With 1 Commission—maximum of 10 Titular members

(c) With 2 Commissions—maximum of 14 Titular members

#### *Divisions (skeleton)*

—maximum of 2 Titular members (Chairman and Secretary)

#### *Commissions (unattached to Divisions)*

—maximum of 8 Titular members

Note (i). Each Associate member representing an "International Association" would keep his association informed of IUPAC activities and also would report to the Section Committee when the formation of a Division concerned with his particular industry would be opportune.

Note (ii). Other Associate members, by virtue of being Chairmen of Skeleton Divisions, would function similarly in that they could, with agreement of the Section Committee and the Union, reform their Division Committee when required.

Note (iii). Attention of the Union has already been drawn to the present unsatisfactory limitation of Titular membership to 10 (and later to 8) in the Divisions of the Applied Chemistry Section. This limitation of membership includes membership of Commissions attached to each Division.

The Titular membership of Divisions with their attached Commissions is a suggested compromise.

## Geochemistry

*Minutes of the meeting held in Münster/Westf., on 3 March, 1960*

Chairman: Prof. W. KLEMM  
Present: Prof. R. BELCHER  
Prof. C. W. CORRENS  
Prof. H. J. EMELÉUS  
Dr. R. MORF

### *Item 1*

Purpose of the meeting:

This meeting was arranged to discuss certain difficulties, which are summarised below.

The Commission on Geochemistry has expressed its fear that IUPAC is not sufficiently interested in the problems of Geochemistry. Also, in the opinion of several geochemists, IUPAC does not allocate enough money to their Commission and neglects mentioning the reports of geochemistry in the *Comptes Rendus*. As a matter of fact, the Secretary General has received the first report on the activity of geochemistry in autumn 1959. Some misunderstandings in the past two years have helped to render this an almost insoluble situation.

On the other hand, IUPAC is of the opinion that the Commission on Geochemistry is willing to receive subventions from IUPAC for symposia, meetings and administrative expenses, while, at the same time, it seems to be inclined to think of an approach to IUGG.

After taking into careful consideration the special interests of geochemistry, IUPAC was not convinced that there exists the necessity of organizing a meeting on geochemistry each year. (1957: Symposium in Paris, 1958: meeting of the Commission in Oxford, 1959: meeting of the Commission in Munich, 1960: meeting of the Commission and Symposium in Copenhagen, 1960: meeting in Helsinki in co-operation with IUGG.)

Following the statutes and rules, and according to general instructions given to the Commissions (draft made by Prof. W. KUHN and Dr. R. MORF), IUPAC has the task of sponsoring work which presupposes co-operation on an international level, whereas normal scientific research should be carried out by individuals exclusively.

### *Item 2*

The report and the minutes of the Geochemistry Commission meetings held in Munich on 26 and 27 August, 1959, were studied and discussed carefully. The items

- (ii) the publication of tables and lists of geochemical data, including rock and mineral analyses;
- (iii) the definition and standardization of geochemical nomenclature;
- (v) the standardization and definition of methods of analysis with a view to evaluation published analytical results;

on page 1 of the working programme were welcomed and supported as being in accordance with the statutes of IUPAC, while the other items were thought not to be within the scope of IUPAC.

### *Item 3*

The wish of the geochemists, to form a Union or Section, was discussed. However, the statutes of ICSU and IUPAC do not allow such an organism. In view of the special concern which the Commission has in the field of geochemistry and the complexity of its tasks, it seems necessary that it

should seek close co-operation within IUPAC with the Physical, the Inorganic, the Analytical and the Applied Chemistry Sections. A close collaboration of geophysicists and geologists is of the same urgency. Without great administrative costs, such a co-operation can be realised by forming a Joint-Division of Geochemistry, under the auspices of the Section of Inorganic Chemistry of IUPAC. It is proposed that this Joint-Division of Geochemistry be allowed to form and maintain a commission and sub-commissions. If these newly established commission and sub-commissions need monetary subventions, the Bureau and the Council of IUPAC will have to approve in advance the exact working programme, which should also mention the duration of the work and the appointments contemplated.

It was also considered that the above mentioned collaboration within IUPAC would be best guaranteed by appointing representatives of the different Sections in the Joint-Division or its commissions, either as Titular Members or as Observers.

The geophysicists (IUGG) might make their contributions by nominating 2 or 3 scientists who should be present at the meetings of the Joint-Division (the exact number could be fixed in negotiations with IUGG). This aim could be reached also by the appointment of National Representatives. A similar solution could be found for representation of geologists. (Representatives to the Joint-Division who are not Titular Members of IUPAC are not entitled to travel and subsistence allowance by IUPAC.)

#### *Item 4*

##### *Future activities:*

Taking into consideration the general wish and the necessity to reduce the increasing number of international meetings, the proposal has been made, to establish a working programme for Geochemistry that will not involve a symposium or meeting each year. It would be desirable that sooner or later, the Division on Geochemistry would organise a similar rotation to IUPAC, that is to say, to hold meetings only every two years.

#### *Item 5*

##### *Budget:*

The total income from annual subventions which are granted to IUPAC by the Adhering Member Countries, amounts to \$27,000. This amount must primarily be used to reimburse travel and subsistence expenses to Titular Members (General Assemblies of the Union). Up to now, the total administrative costs of IUPAC have not exceeded a few thousand dollars.

In a petition, the Commission on Geochemistry has demanded the amount of \$9500 for 1960. It is not possible for IUPAC to pay this amount. The Executive Committee, after having consulted all Section Presidents, has approved the following items for 1960:

- (i) Symposium in Copenhagen, \$1000 (transfer of the amount granted for the meeting in Göttingen in 1959).
- (ii) Reimbursement of travel and subsistence for the meeting of the Commission in Copenhagen, \$2620.

It is not possible, as a matter of principle, for Commission Members to be reimbursed for two journeys in the same year. This is a guiding principle for all Commission activities. Administrative costs of the Geochemistry Commission, which have been particularly high (\$500 a year) because of the unusual situation in Helsinki, should be kept as low as possible. A simple multiplication of the amounts claimed by the Geochemistry Commission shows very clearly that it would be financially impossible to treat all other Commissions of IUPAC in the same generous way, as has been the case with the Geochemistry Commission.



Prof. CORRENS will discuss this matter with Prof. INGERSON, and he will report back to the Executive Committee. (It must be pointed out that IUPAC comprises 6 Sections with more than 50 Commissions. Each Commission has the right to be treated in the same way as the Geochemistry Commission.)

#### *Item 6*

##### *Publication:*

The contract of IUPAC with its official publishers provides that all the reports and papers issuing from a symposium, are published through the Editorial Board of IUPAC. Therefore, it will be necessary that all the reports and papers of the Symposium and the meeting of the Commission held in Copenhagen and the Symposium held in Helsinki should be offered for publication to IUPAC. The Editorial Board will decide whether IUPAC will publish these reports and papers or not. As to the expenses, the Commission will not have to pay for the publications, nor will it be concerned with the actual processes of publication provided that the IUPAC Editorial Board assumes the duty to publish. Each of the members of the Geochemistry Commission will receive a copy of it, free of charge.

#### *Item 7*

It is proposed that the Joint-Division should be autonomous; only in its dealings with other Unions and other Organizations, as well as in all financial questions, it will have to seek the approval of the Bureau of IUPAC through the Section President of the Inorganic Chemistry Section.

#### *Item 8* The above are draft minutes of the meeting held in Münster:

It is clearly understood that if the Geochemistry Commission will agree to whatever change in its position, this change has to be accepted by the Sections involved; a final decision will be made by the Bureau and by the Council of IUPAC.

#### *Resolution concerning Geochemistry*

(i) That in view of the great diversity of interests of the Geochemistry Commission and the complexity of its tasks, it seems necessary that it should seek, within IUPAC, close co-operation with the Physical, the Inorganic, the Analytical and the Applied Chemistry Sections. A close collaboration of geophysicists and geologists is of the same urgency. Without great administrative cost, such a co-operation can be realised by forming a Joint Division of Geochemistry, under the auspices of the Section of Inorganic Chemistry of IUPAC. It is proposed that this Joint Division of Geochemistry be allowed to form and maintain a commission and sub-commissions. If this Commission needs monetary subventions, the Bureau and the Council of IUPAC will have to approve in advance the exact working programme, which should also mention the duration of the work and the appointments contemplated.

(ii) That the above mentioned collaboration within IUPAC be guaranteed by appointing representatives of the different Sections to the Joint Division or its commission, either as Titular Members or as Observers.

The geophysicists (IUGG) might make their contribution by nominating 2 or 3 scientists who should be present at the meetings of the Joint Division (the exact number could be fixed in negotiations with IUGG). This aim might be reached also by the appointment of National Representatives. A similar solution could be found for representation of geologists.



(Representatives to the Joint Division who are not Titular Members of IUPAC are not entitled to travel and subsistence allowance by IUPAC.)

(iii) That the Executive Committee of IUPAC be empowered to take appropriate action at its next meeting after having given due consideration to the opinions of the Geochemistry Commission and the Section of Inorganic Chemistry.

### Politique concernant les publications

Il y a eu une longue discussion afin de savoir si les Comptes Rendus et le Bulletin d'Information devaient être incorporés ou non dans le Journal de l'IUPAC «Pure and Applied Chemistry». Les responsables de l'Union étaient pour l'affirmative et ils estimaient en conséquence que l'éditeur devait supporter la charge financière de ces deux publications. Le Secrétaire Général était très favorable à cette idée, car il espérait qu'ainsi au moins une partie de sa tâche serait reprise par le Comité de Rédaction de l'IUPAC.

Par contre, l'éditeur officiel de l'Union ne désirait pas publier les Comptes Rendus et le Bulletin d'Information car, en tant que firme commerciale, il préfère ne publier que les rapports qui sont d'une vente certaine.

La décision finale dut en conséquence tenir compte de cet avis dicté par des raisons commerciales. C'est pourquoi, malheureusement, le Secrétaire Général doit continuer à rédiger les Comptes Rendus et le Bulletin d'Information. Ces deux publications, dont le tirage n'est pas très élevé, doivent être éditées dans le même format que le nouveau Journal «Pure and Applied Chemistry».

Le Bulletin d'Information n° 11 apporte, dans un certain sens, une innovation et tente une expérience: il a été décidé que les règles provisoires de nomenclature devraient être présentées tout d'abord d'une façon semi-officielle. Il n'est en réalité pas facile de trouver la meilleure procédure à suivre concernant les règles provisoires. En effet, d'une part on devrait distribuer les règles provisoires sur une vaste échelle en invitant le plus grand nombre possible de savants à les commenter; d'autre part il pourrait surgir de grandes difficultés si les règles provisoires, après avoir été distribuées partout sans contrôle, devaient subir de grandes modifications ou être supprimées. C'est pourquoi la décision d'imprimer ces règles provisoires dans le Bulletin d'Information est un moyen économique de propager ces règles d'une façon aisément contrôlable.

A titre d'essai, les Règles provisoires de Nomenclature des Stéroïdes seront imprimées dans ce numéro et toutes les personnes s'occupant de recherches ou du développement dans le domaine des stéroïdes sont priées de faire des commentaires dès que possible afin que nous ayons une image claire de la situation d'ici la Conférence de Montréal.

Ces règles provisoires ont été élaborées par un Comité de travail composé des: Dr R. S. CAHN, Dr H. DANNENBERG, Prof. L. F. FIESER, Dr H. HEUSER, Dr J. JACQUES, et Prof. T. REICHSTEIN et présidé par le Dr W. KLYNE.

Le travail de cette Commission est un exemple frappant de la procédure que devrait suivre l'Union dans tous les cas analogues (voir annexe B).

## Publication Policy

There has been a long discussion whether or not the Comptes Rendus and the Information Bulletin should be incorporated in the IUPAC Journal "Pure and Applied Chemistry". At first, the officers of the Union were of the opinion that both the Comptes Rendus and the Information Bulletin should be incorporated into the IUPAC Journal and that the publishers therefore would take over the financial burden of these 2 publications. The Secretary General strongly supported this idea of making economies. He also had a slight hope that at least one part of his time consuming task could be taken over by the IUPAC Editorial Board.

On the other hand, the official publisher, was not inclined to publish the Comptes Rendus and the Information Bulletin because as a commercial publisher, they prefer to publish only those reports which can be regarded as bestsellers.

Consequently, the final decision had to take care of this view dictated by commercial reasons and unfortunately following these decisions, the Secretary General has to continue and to fulfil the task of drafting both the Comptes Rendus and the Information Bulletin. These two publications, the sale's figure of which will not be high, have to be issued in the same format as the new Journal "Pure and Applied Chemistry".

Information Bulletin No. 11 to some extent brings an innovation and an experiment. It has been decided that the provisional draft rules for nomenclature should first be presented semi officially in the Information Bulletin. It is indeed not very easy to find a satisfactory procedure for the dissemination of provisional rules. On the one hand provisional rules should be given world-wide circulation, inviting scientists to make their comments to the draft rules; on the other hand, it might be dangerous if provisional rules which may undergo substantial alterations or which may be withdrawn lateron, be given world-wide circulation without any control. The decision to put these draft rules in the Information Bulletin therefore is an economical procedure aiming at giving draft rules such a circulation which can easily be controlled.

As an experiment, the draft rules for Steroid Nomenclature will be reproduced in this issue and everybody concerned with research and development in the field of steroids is kindly requested to make comments within such a time that a clear picture will be available at the time of the Montreal Conference. The draft rules have been elaborated by a working committee presided over by Prof. W. KLYNE.

Members were Dr. R. S. CAHN, Dr. H. DANNENBERG, Prof. L. F. FIESER, Dr. H. HEUSSER, Dr. J. JACQUES, Prof. T. REICHSTEIN.

The work of this Commission moreover is a fine example how the Union should achieve results (see Appendix B).

V. XXIst CONFERENCE AND XVIIIth CONGRESS—MONTREAL 1961  
First Draft of a Tentative

Programme for IUPAC Congress, Montreal, 6–12 August, 1961

I. *Physical Chemistry*

- (1) *Structure and Reactivity of Small Molecular Species*
  - (i) Valence theory, free radicals and ions, electronically excited states.
  - (ii) Theory of elementary processes, energy transfer processes, ion-molecule reactions.
- (2) *Solid State*
  - (i) Modern concepts of structure and bonding in crystals.
  - (ii) Excitation processes, including thermal excitation (theory, absorption and luminescence spectra).
  - (iii) Molecular motion and relaxation processes.
  - (iv) Chemical reactions in solids.
- (3) *Physical and Thermodynamic Properties at High Temperatures*
  - (i) Condensed states.
  - (ii) Gaseous states.
  - (iii) Thermodynamic Properties.
- (4) *Nuclear Chemistry*
  - (i) High energy particle reactions.
  - (ii) Heavy ion reactions.

II. *Applied Chemistry*

- (1) *Structure and Catalytic Activity of Metal Surfaces*
- (2) *Metallurgical Processes*
  - (i) Slag-metal reactions.
  - (ii) Reactions under pressure.
  - (iii) Recovery of the less common metals.
- (3) *Electrochemistry*
  - (i) Molten salts.
  - (ii) Kinetics of electrode processes.
- (4) *Plastics and High Polymers*
  - (i) Relationship between chemical structure and physical properties (in high polymers).
- (5) *Wood Chemistry Symposium*

III. *Analytical Chemistry*

- (1) *Analysis of metals and minerals*
  - (i) Trace elements in metals and minerals.
  - (ii) Gases in metals.
- (2) *Analytical Chemistry of the less common metals*
- (3) *Analysis of pesticide residues*
  - (i) Degradation and metabolism of pesticides.
  - (ii) Detection and analysis of pesticide residues.

IV. *Organic Chemistry Symposium*

Topic: Dynamic Stereochemistry.  
(Invited papers only)

*Other Symposia*

- (1) Symposium on Macromolecules—Montreal, 26 July to 1 August, 1961.
- (2) Calorimetry Conference—Ottawa, 14–16 August, 1961.

## VI. CALENDAR

1960

### July

- |       |   |          |
|-------|---|----------|
| 4- 9  | 2nd International Congress on Catalyse<br>(General Secretariat 2nd International Congress<br>on Catalyse, Ecole supérieure de Physique<br>et de Chimie, 10, rue Vauquelin, Paris-5 <sup>e</sup> ) | Paris    |
| 18-26 | Tercentenary Celebrations of the Royal Society<br>(Dr. D. C. MARTIN, the Royal Society,<br>Burlington House, Piccadilly, London W.1)  | London   |
| 25    | Symposium on Geochemistry<br>(Dr. P. H. ABELSON, Geophysical Laboratory,<br>2801 Upton Street, Washington 8, D.C.)  | Helsinki |

### July/August

- |       |   |            |
|-------|---|------------|
| 25- 6 | 12th General Assembly of IUGG<br>Symposium on Geophysical Aspects of Cosmic<br>Rays General meeting on IGY<br>Symposium on Geophysical Study of Data<br>provided by Rockets and artificial Satellites<br>Planetary and lunar Seismology<br>(Prof. W. A. HEISKANEN, Finnish Geodetic<br>Institute, Hamerenkatu 51, Helsinki K) | Helsinki   |
| 27    | Symposium on Rock Age Determinations<br>(Dr. L. T. ALDRICH, National Research Council,<br>2101 Constitution Avenue, Washington 25, D.C.)  | Helsinki   |
| 31- 5 | 3rd International photobiological Congress<br>(Dr. A. HOLLAENDER, National Laboratory,<br>Oak Ridge/Tenn.)  | Copenhagen |

### July

- |  |          |
|--|----------|
| 2nd International Symposium on Maximum<br>Allowable Concentrations of Toxic Substances<br>in Industries (Prof. R. TRUHAUT,<br>4, av. de l'Observatoire, Paris-6 <sup>e</sup> ) | New York |
|--|----------|

### August

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|-------|--|---------------------------------|
| 11-13 | Cospar Bureau meeting<br>(Secr. Nieuwe Schoolstraat 28, The Hague)   | Stockholm                       |
| 14-19 | International Congress of Clinical Chemistry<br>(Prof. S. C. FRAZER, Clinical Laboratory,<br>Royal Infirmary, Edinburgh)   | Edinburgh                       |
| 15-20 | 5th General Assembly of IUCr<br>(Dr. W. H. TAYLOR, Crystallograph Laboratory,<br>Cavendish Laboratory, Cambridge)  | Cambridge                       |
| 15-25 | Symposium on the Chemistry of Natural<br>Products (Dr. A. L. G. REES, Box 4331,<br>G.P.I., Melbourne/Australia)  | Melbourne<br>Canberra<br>Sydney |
| 15-25 | 21st International Geological Congress<br>(General Secretariat XXIst International<br>Geological Congress, Mineralogisk Museum,<br>Øster Voldgade 7, Copenhagen K) | Copenhagen                      |
| 26-28 | Meeting of the Fermentation Division<br>(Prof. H. LUNDIN, Royal Institute of Technology,<br>Stockholm 70)  | Zurich                          |



*August/September*

- |               |  |                  |
|---------------|--|------------------|
| 28- 3         | 1st International Congress of Histochemistry and Cytochemistry (Dr. R. WEGMANN, c/o Laboratoire d'Histochimie, Faculté de Médecine, 45, rue des Saints-Pères, Paris-6 <sup>e</sup> ) | Pasadena (Cal.)  |
| 29- 3         | Meeting of some Commissions of CITCE (Prof. M. POURBAIX, 24, rue des Chevaliers, Bruxelles)  | Bruxelles        |
| 29- 2         | International Conference on Semiconductor Physics (Dr. MILOS MATYAS, Cukrovarnicka 10, Prague 5)   | Prague           |
| 29- 3         | International Research Symposium on the Use of Radioactive Isotopes in the Study of Bone (Dr. J. F. DELAFRESNAYE, 6, rue Franklin, Paris-16 <sup>e</sup> )                           | New York         |
| 29- 9         | Course on Radioisotope Methods in analytical Chemistry (UKAEA Isotope school, Wantage/Berks. GB)   | Wantage (Berks.) |
| <i>August</i> | Symposium on Geochemistry (Prof. C. W. CORRENS, Lotzestr. 13, Göttingen)   | Copenhagen       |

*September*

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|------|--|-------------|
| 1- 7 | 5th International Congress on Nutrition (Dr. M. O. LEE, 9650 Wisconsin Avenue, Washington 14, D.C.)  | Washington  |
| 4-10 | World Congress of Anaesthesiologists (World Federation of Societies of Anaesthesiologists Dr. R. A. GORDON, 516 Medical Arts Building, Toronto 5)                    | Toronto     |
| 5- 9 | Conference on Chemical Engineering Science (Technicka 1905, Praha-Dejvice)   | Prague      |
| 5-15 | 13th General Assembly of URSI<br>Rocket and Satellite Observation Data for Ionosphere URSI and Space Research (Col. E. HERBAYS, 7, pl. E. Danco, Uccle-Bruxelles 18) | London      |
| 6- 7 | Conference of the physical-chemical Division of the Chemical Institute of Canada (The Chemical Institute of Canada, 48 Rideau Str., Ottawa 2)                        | Montreal    |
| 6- 8 | Nuclear and Radiochemistry Symposium (Dr. R. H. BETTS, Atomic Energy of Canada Ltd., Chalk River/Ont.)   | Chalk River |
| 6-17 | Conference on the Use of Radioisotopes in the Physical Sciences and Industry (IAEA, Kärntnerring, Vienna I) Meeting of the Joint Commission on Applied Radioactivity | Copenhagen  |

*September/October*

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|------|--|-------------------|
| 6-14 | Special Course in Radioisotopes Techniques (Dr. R. T. OVERMANN, P.O.B. 117, Oak Ridge/Tenn. USA) | Oak Ridge (Tenn.) |
|------|--|-------------------|

*September*

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|------|--|--------|
| 7- 9 | 10th General Assembly of IUPAP (Prof. P. FLEURY, Secretary General, 3, bd Pasteur, Paris-15 <sup>e</sup> ) | Ottawa |
|------|--|--------|

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|-------|---|----------------------|
| 12-17 | International Congress on Surface Activants<br>(Deutscher Ausschuss für grenzflächenaktive<br>Stoffe, Verband der Chemischen Industrie,<br>Karlstr. 21, Frankfurt/M.) | Cologne              |
| 12-23 | Course on Radionuclides in Foods (R. A. TAFT,<br>4676 Columbia Parkway, Cincinnati/Ohio, USA)   | Cincinnati<br>(Ohio) |
| 14-19 | 21st National Congress of the Italian Society of<br>Medical Radiology and Nuclear Medicine<br>(Istituto del Radio, Policlinico S. Orsola,<br>Bologna)                 | Bologne              |
| 15-25 | 3rd Inter-European Congress of Cardiology<br>(Dr. V. PUDDU, Clinica Medica, Università,<br>Policlinico, Roma)   | Rome                 |
| 16-17 | Symp. on Chromatography (Sté belge des sciences<br>pharmaceutiques, 11, rue Archimède, Bruxelles)   | Bruxelles            |

*September/December*

- |       |   |           |
|-------|---|-----------|
| 19-16 | Special Course on Radiochemistry (Chemisches<br>Laboratorium Fresenius, Kapellenstr. 11-15,<br>Wiesbaden) | Wiesbaden |
|-------|---|-----------|

*September/October*

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|-------|---|---------------------|
| 20- 7 | 4th General Conference of the International<br>Atomic Energy Agency (IAEA, Kärntnerring,<br>Vienna I) | Vienna              |
| 26- 7 | Course on advanced Biochemistry (UKAEA,<br>Isotope School, Wantage/Berks. GB)                         | Wantage<br>(Berks.) |

*September*

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|-------|---|-------|
| 26-28 | Symposium on Reinforced Polyester Resins<br>(Prof. A. NASINI, 48 Corso Massimo d'Azeglio,<br>Turin) | Turin |
|-------|---|-------|

*October*

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|-------|--|-------------------|
| 4-22  | Meeting of the International Commission of<br>Weights and Measures (Bureau international des<br>Poids et Mesures, Pavillon de Breuteuil,<br>Sèvres/S.-et-O., France) | Sèvres (S.-et-O.) |
| 11-19 | 11th General Conference on Weights and<br>Measures (Bureau international des Poids et<br>Mesures, Pavillon de Breuteuil,<br>Sèvres/S.-et-O. France)                  | Sèvres (S.-et-O.) |
| 15-17 | 45th Executive Committee Meeting of IUPAC<br>(Dr. R. MORF, c/o F. Hoffmann-La Roche & Cie<br>Ltd., Basle 2)  | Madrid            |
| 15-17 | 24th meeting of the ICSU Executive Board   | Lisbonne          |
| 19-22 | XIIth meeting of the ICSU Bureau<br>(Dr. R. FRASER, ICSU Administrative Secretariat,<br>Paleis Noordeinde, The Hague)  | Lisbonne          |
| 17-22 | ISO meeting on Plastics ISO/TC 61<br>(M. H. SAINT LEGER, 1, rue de Varembe, Geneva)  | Prague            |
| 17-19 | Technologie de la Transformation des matières<br>plastiques - Congrès international 1960<br>(Mr. J. H. ZURBURG, Tesselschadestraat 5,<br>Amsterdam)                  | Amsterdam         |

- Symp. on Redox Processes (conv. Dr. S. PRAKASH) India  
*April* Symposium on Tritium as a Tool in Physics, Zurich  
 Chemistry, Biology and Meteorology (International Atomic Energy Agency, Kärntnerring, Vienna I)
- April*  
 10-15 1st International Congress on Metallic Corrosion London  
 (Col. FRANCIS J. GRIFFIN, Society of Chemical Industry, 14 Belgrave Square, London S.W.1)  
 11-14 The Chem. Soc. Anniversary meetings Liverpool  
 (Chem. Soc. Piccadilly, London W.1)  
 24-29 12th meeting of CITCE (Dr M. POURBAIX, Brussels  
 c/o Cebelcor, 24, rue des Chevaliers, Brussels)
- May*  
 7 13th International Symposium on Crop Protection Ghent  
 (Prof. J. VAN DEN BRANDE, Institut Agonomique de l'Etat, Coupure gauche 233, Ghent)
- May/June*  
 29- 2 Vth European Conference on Molecular Spectroscopy (Prof. J. A. A. KETELAAR, Amsterdam  
 Vondelstraat 17, Amsterdam W)
- June*  
 9-17 13th Exhibition Congress of Chemical Engineering Frankfurt/M.  
 (Achema 61) (Dr. BRETSCHNEIDER, Dechema-Haus, Rheingau-Allee 25, Frankfurt/M.)  
 26-30 II<sup>e</sup> réunion annuelle Sté chim. phys. Col de Voza/  
 (Prof. G. EMSCHWILLER, 10, rue Vauquelin, Chamonix  
 Paris-5<sup>e</sup>)
- July*  
 3- 7 3rd International Congress of Dietetics London  
 (British Dietetic Association, 251 Brompton Road, London S.W.3)  
 10-14 4th Congress of the International Diabetes Federation Geneva  
 (Dr B. RILLIER, Polyclinique de Médecine, 24, rue Micheli du Crest, Geneva)  
 18-21 Int. symp. on inorg. Polymers (Chem. Society, Nottingham  
 Burlington House, Piccadilly, London W.1)
- July/August*  
 27- 1 Colloquium on Macromolecular Chemistry Montreal  
 (Dr. H. L. WILLIAMS Polymer Corporation Ltd., Sarnia/Ont.)
- August*  
 2- 5 XXIst Conference IUPAC (Dr. R. MORF, Montreal  
 c/o F. Hoffmann-La Roche & Co., Basle 2, Switzerland)  
 6-12 XVIIIth International Congress of IUPAC Montreal  
 (Prof. L. MARION, Division of Pure Chemistry, National Research Council, Ottawa 2)

10-16	4th General Assembly IUB 5th International Congress of Biochemistry (Prof. R. H. S. THOMPSON, c/o Department of Chemical Pathology, Guy's Hospital Medical School, London S.E.1)	Moscow
?	Symposium on Microtechniques (Dr. AL. STEYERMARK, c/o Roche Limited, Nutley/N.J.)	USA
?	5th International Congress on Pesticides	Canada
?	Symposium on the Chemistry of Wood	Canada
14-16	Calorimetry Conference / IUPAC Joint meeting (Prof. C. E. MESSER, c/o Department of Chemistry, Tufts College, Medford/Mass., USA)	Ottawa

*August/September*

27- 1	6th International Conference on Co-ordination Chemistry (Dr. S. KIRSCHNER, Department of Chemistry, Wayne State University, Detroit 2, Mich.)	Detroit
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**1962**

<i>May</i>		
2	14th International Symposium on Crop Protection (Prof. J. VAN DEN BRANDE, Institut Agronomique de l'Etat, Coupure gauche 233, Ghent)	Ghent
<i>June</i>		
25-29	International Conference on Co-ordination Chemistry (Prof. L. G. SILLÉN, Royal Institute of Technology, Kemistvägen 37, Stockholm 70)	Stockholm
<i>August</i>		
	Symposium on the Chemistry of Natural Products (Prof. F. SORM, Institute of Chemistry, Czechoslovakian Academy of Sciences, Na civicisti 2, Prague 6)	Prague
?	Symposium on Organo-Metallic Complexes (Comité national de chimie, Palais des Académies, Bruxelles)	Brussels
<i>September</i>		
17-19	International Symposium on Pharmaceutical Products (Prof. A. SOLDI, Segreteria, Società Italiana di Scienze Farmaceutiche, Via Giorgio Jan 18, Milano)	Florence



## VII. BIBLIOGRAPHY

1954

*International Symposium on Macromolecular Chemistry*, (Consiglio nazionale delle Ricerche)—Milano/Torino—26 September–2 October—Outside Italy published by Interscience Publishers, Inc., 250 Fifth Avenue, New York 1

*Silicon, Sulphur, Phosphates*, Colloquium of the Section for Inorganic Chemistry—Münster, 2–6 September—Published by Verlag Chemie GmbH, Pappelallee 3, Weinheim/Bergstrasse (Germany)

1955

*Comptes Rendus of the 7th Meeting of the Comité international de Thermodynamique et de Cinétique électrochimiques CITCE*, Lindau—Published by Butterworths Scientific Publications Ltd., 4–5 Bell Yard, London W.C.2

*XIVth International Congress of Pure and Applied Chemistry*, Zurich, 21–27 July—Main and Section Lectures—*Experientia Supplementum II*—Information may be received from Birkhäuser-Verlag, Elisabethenstrasse 19, Basle

*Reprints of the Comptes Rendus of the XVIIIth Conference*, Zurich—Copies may be bought from the Secretary General Dr. R. MORF, c/o F. Hoffmann-La Roche & Co., Grenzacherstrasse 124, Basle 2

Booklet 2    Organic Chemistry Section    Organic Nomenclature

Booklet 3    Biological Chemistry Section    Nomenclature of Steroids

*Summaries of Papers*, held during the XIVth International Congress of Pure and Applied Chemistry in Zurich—Information may be obtained from Dr. R. MORF, c/o F. Hoffmann-La Roche & Co., Grenzacherstrasse 124, Basle 2

1956

*Colloque sur le Dosage des Poussières silicieuses dans les Atmosphères industrielles*, Lisbon—By the Toxicology and Industrial Hygiene Division

*Comptes Rendus of the 8th Meeting of the Comité international de Thermodynamique et de Cinétique électrochimiques CITCE*, Madrid—Published by Butterworths Scientific Publications Ltd., 4–5 Bell Yard, London W.C.2

*Congress Handbook of the XVth International Congress of Pure and Applied Chemistry*, Lisbon—Copies may be obtained from Mr. A. RALHA, Instituto Superior Técnico, Lisbon

*Experimental Thermochemistry*, Published under the Direction of Prof. F. D. ROSSINI, President of the Commission on Chemical Thermodynamics, by Interscience Publishers, Inc., 250 Fifth Avenue, New York 1

*XVth International Congress of Pure and Applied Chemistry*, Lisbon—*Experientia Supplementum V*—Information may be received from Birkhäuser-Verlag, Elisabethenstrasse 19, Basle

*Symposium on Macromolecules*, Rehovot, 3–6 April—Published in the *Journal of Polymer Science* by Interscience Publishers, Inc., 250 Fifth Avenue, New York 1

*Tables de Constantes sélectionnées, Pouvoir rotatoire naturel I. Stéroïdes*—Information may be obtained from Mme S. ALLARD 18, rue Pierre-Curie, Paris-5<sup>e</sup>

*Comptes Rendus of the XIXth Conference*, Paris—Printed by Berichthaus, Zurich—Copies may be bought from Dr. R. MORF, c/o Hoffman La Roche & Co., Grenzacherstrasse 124, Basle 2

*Comptes Rendus of the 9th Meeting of the Comité international de Thermodynamique et de Cinétique électrochimiques CITCE*, Paris—Published by Butterworths Scientific Publications, Ltd., 4-5 Bell Yard, London W.C.2

*Definitive Rules for the Nomenclature of Organic Chemistry*, Section A: Hydrocarbons. Section B: Fundamental Heterocyclic Systems—English version—Information may be received from Butterworths Scientific Publications Ltd., 4-5 Bell Yard, London W.C.2

*Definitive Rules for the Nomenclature of Steroids*, Organic and Biological Chemistry, English version—Information may be received from Butterworths Scientific Publications Ltd., 4-5 Bell Yard, London W.C.2

*XVth International Congress of Pure and Applied Chemistry*, Paris—Experientia Supplementum VII—Information may be obtained from Birkhäuser-Verlag, Elisabethenstrasse 19, Basle

*International Symposium on the Chemistry of Co-ordination Compounds*, Rome 15-21 September—To be obtained from: Consiglio Nazionale delle Ricerche, Piazzale delle Scienze 7, Roma—Outside Italy: Pergamon Press Ltd., 4 Fitzroy Square, London W.1—Pergamon Press Ltd., 122 East 55th Street, New York

*La Diffusion dans les Liquides et dans les Gels*, Published in the «Journal de Chimie Physique» (issues of November 1957, December 1957, February 1958, April 1958)—Information may be obtained from: Journal de Chimie Physique (service de M. CHATELET), 11, rue Pierre-Curie, Paris-5<sup>e</sup>

*Modern Electroanalytical Methods*, Proceedings of the International Symposium on Modern Electrochemical Methods of Analysis, Paris—Edited by Prof. G. CHARLOT and published by Elsevier Publishing Company, Spuisstraat 110-112, Amsterdam

*Nomenclature of Inorganic Chemistry*, Information may be obtained from Butterworths Scientific Publications Ltd., 4-5 Bell Yard, London W.C.2

*Reprint of the Comptes Rendus of the XIXth Conference*, Paris—Inorganic Chemistry Section: *Atomic Weights, The radioactive Elements*—Copies may be bought from Dr. R. MORF, c/o F. Hoffmann-La Roche & Co., Grenzacherstrasse 124, Basle 2

*Stability Constants of Metal-Ion Complexes with Solubility Products of Inorganic Substances*, Volume I—By Messrs. J. BJERRUM, G. SCHWARZENBACH and L. G. SILLÉN—Published by the Chemical Society of London, Burlington House, Piccadilly, London W.1

*Symposium on Macromolecules*, Prague, 9-15 September—Published in the *Journal of Polymer Science* and in the "Collection of the Czech Chemical Communications"

*Tables de Constantes sélectionnées*, Pouvoir rotatoire naturel—*Diamagnétisme et Paramagnétisme. Relaxation paramagnétique*—Information may be obtained from Mme S. ALLARD, 18, rue Pierre-Curie, Paris-5<sup>e</sup>

*Tables de Valeurs sélectionnées de Polarographie*, by Prof. SEMERANO, University of Padova—Published by the Consiglio Nazionale delle Ricerche, Roma

*Tentative Rules for Nomenclature in the Vitamin-B<sub>12</sub> Field*, Organic Chemistry—English version—Information may be received from Butterworths Scientific Publications, 4-5 Bell Yard, London W.C.2

*Definitive Rules for the Nomenclature of Organic Chemistry*, French version—Published by the Société chimique de France

*Definitive Rules for the Nomenclature of Organic Chemistry*, Spanish version—Translated by Prof. J. PASCUAL-VILA—Published by the Consejo Superior de Investigaciones Científicas

*La Combustion dans les Mélanges gazeux*, Published in the Review of the «Institut du Pétrole» (April 1958 issue)—Information may be received from the Société des Editions TECHNIP, 2, rue de Lubeck, Paris-16<sup>e</sup>

*Proceedings of the International High-Polymer Conference*, Nottingham 21–24 July—Published by Interscience Publishers, Inc., 250 Fifth Avenue, New York 1

*Stability Constants of Metal-Ion Complexes with Solubility Products of Inorganic Substance*, Volume II—By Messrs. J. BJERRUM, G. SCHWARZENBACH and L. G. SILLÉN—Published by the Chemical Society of London, Burlington House, Piccadilly, London W.1

*Symposium on the Structure of Proteins*, By the Biological Chemistry Section—Published in September for the United Kingdom by Methuen & Co.; for the USA by John Wiley, New York 16

*System of International Chemical Notation*, By Codification, Ciphering and Punched Card Techniques Commission—Published by Longman's Green & Co., London W.1

*Tables de Constantes sélectionnées, Potentiels d'oxydo-réduction—Pouvoir rotatoire naturel—II. Triterpénoïdes*—Information may be obtained from Mme S. ALLARD, 18, rue Pierre-Curie, Paris-5<sup>e</sup>

*Theoretical Organic Chemistry*, The Kekulé Symposium—London, September 15–17—Published by Butterworths Scientific Publications Ltd., 4–5 Bell Yard, London W.C.2

## 1959

*Assay of Vitamin A Oils / Report on the Vitamin D Bioassay of Oils and Concentrates / Vitamin A Potency of Beta-Carotene*, By the Vitamine Assay Subdivision—Published by Butterworths Scientific Publications Ltd., 4–5 Bell Yard, London W.C.2

*Comptes Rendus of the XXth Conference*, Munich—Secretary General IUPAC, Basle 2

*Definitive Rules for the Nomenclature of Organic Chemistry*, Italian version—Published in the Journal «Chimica e Industria»

*Determination of Copper Content of Foodstuffs, (Photometric Method)*, By Trace Elements in Food Subdivision—Published by Butterworths Scientific Publications Ltd., 4–5 Bell Yard, London W.C.2

*International Conference on Co-ordination Chemistry*, London, 6–11 April—Published by the Chemical Society of London, Burlington House, Piccadilly, London, W.1

*XVIIth International Congress of Pure and Applied Chemistry*, Munich—Published by Verlag Chemie GmbH, Pappelallee 3, Weinheim/Bergstrasse (Germany) and Butterworths, London W.C.2

*Macromolecular Chemistry, Symposium on Macromolecules*, Wiesbaden—Published by Alfred-Hüthig-Verlag, Heidelberg (Germany) and Verlag Wepf & Co., Basle (Switzerland)

*Manual of Physico-Chemical Symbols and Terminology*, Commission on Physico-Chemical Symbols and Terminology—Published by Butterworths Scientific Publications Ltd., 4–5 Bell Yard, London W.C.2

*Mémoires de la Section de Chimie minérale*, Published by SEDES, 5, place de la Sorbonne, Paris-5<sup>e</sup>

*Méthodes unifiées pour le dosage des substances toxiques dans les atmosphères industrielles*, By the Toxicology and Industrial Hygiene Division—Published by Butterworths Scientific Publications Ltd., 4–5 Bell Yard, London W.C.2



*Report on Education and Training in the Paint Industry*, By the Organic Coatings Division—Published by Butterworths Scientific Publications Ltd., 4-5 Bell Yard, London W.C.2

*Symposium on Thermodynamics*, Fritzens-Wattens—Information can be obtained from Prof. K. SCHÄFER, Physikalisch-chemisches Institut, Plöck 55, Heidelberg

*Tables de Constantes sélectionnées*, Pouvoir rotatoire naturel—III Amino-acides—Information may be obtained from Mme S. ALLARD, 18, rue Pierre-Curie, Paris-5<sup>e</sup>

*Tables de Constantes sélectionnées*, Pouvoir rotatoire naturel—IV Alca-loïdes—Information may be obtained from Mme S. ALLARD, 18, rue Pierre-Curie, Paris-5<sup>e</sup>

1960

*Classification on High Polymers*, By Plastics and High Polymers Division—Published by Butterworths Scientific Publications Ltd., 4-5 Bell Yard, London W.C.2

### VIII. EDITORIAL

Whilst the editorial for the Information Bulletin is drafted the Tercentenary Celebration of the Royal Society, the oldest scientific society in the world, comes to an end and will pass on into history. On behalf of IUPAC, President NOYES presented a parchment scroll written in Latin. A reproduction of this scroll and the translation of the contents into the English language is published on page 1.

An announcement from the Buckingham Palace at the end of April said: "The Queen has been graciously pleased to confer the Order of Merit on Sir CYRIL HINSHELWOOD, President of the Royal Society and Professor of Chemistry at Oxford."

On the occasion of the Tercentenary Celebration of the Royal Society, Dr. DETLEV BRONK, President of the Academy of Sciences, Washington, and President of the Rockefeller Institute for Medical Research, New York, was awarded a high honorary degree.

Academician N. N. SEMJENOW who, in 1956 shared his Nobel prize with Sir CYRIL HINSHELWOOD, was honoured by the Royal Society which conferred a honorary degree on him.

The Assistant Secretary of the Royal Society, our distinguished colleague, Dr. D. C. MARTIN, was promoted "Commander of the British Empire".

The President of the International Union of Pure and Applied Chemistry, Professor W. ALBERT NOYES, Jr., in his capacity as distinguished scientist, was awarded a honor scroll by the American Section of the Société de Chimie industrielle.

Notre ami, le Professeur MAURICE LETORT, sur la proposition du Premier Ministre, a été promu au grade d'Officier de la Légion d'honneur.

On behalf of all the friends of the International Union of Pure and Applied Chemistry, I have the great privilege to extend our heartiest congratulations to all the colleagues mentioned above.



## Appendix A

### FINAL BUDGET FOR 1960

approved by the Bureau in Leningrad on Thursday 26 May, 1960

<i>Physical Chemistry Section</i>	\$	\$
<i>Commissions</i>		
Physico-Chemical Symbols and Terminology . . . . .	1 500	
Chemical Thermodynamics (Thermodynamical Bulletin)	250	
Molecular Structure and Spectroscopy . . . . .	1 850	
Administration . . . . .	220	3 820
<i>Inorganic Chemistry Section</i>		
<i>Commissions</i>		
Nomenclature . . . . .	500	
Geochemistry . . . . .	3 133	
<i>Symposium</i>		
Geochemistry (transferred from 1959) . . . . .	1 000	
IUPAC representatives to IUGG symposium Helsinki .	664	
Administration . . . . .	600	5 897
<i>Organic Chemistry Section</i>		
Section Committee . . . . .	200	
<i>Commissions</i>		
Nomenclature . . . . .	2 000	
Codification, Ciphering and Punched Card Techniques .	1 100	
<i>Symposium</i>		
Australia—Chemistry of Natural Products . . . . .	5 000	
Travel expenses for Prof. H. ERDTMAN . . . . .	1 265	9 565
<i>Biological Chemistry Section</i>		
<i>Commissions</i>		
Nomenclature (Steroids—Basle) . . . . .	1 000	
Clinical Chemistry . . . . .	1 300	
<i>Symposium</i>		
Clinical Chemistry—Edinburgh . . . . .	2 000	
Administration . . . . .	500	4 800
<i>Analytical Chemistry Section</i>		
Administration . . . . .	1 500	1 500
<i>Applied Chemistry Section</i>		
<i>Divisions</i>		
Water, Sewage and Industrial Wastes . . . . .	800	
Pulp, Paper and Board . . . . .	1 000	
Oils and Fats . . . . .	800	
Food Additives . . . . .	940	
Trace Elements in Food . . . . .	500	
Fermentation . . . . .	1 400	
Administration . . . . .	600	6 040

Meeting in Germany (KLEMM, CORRENS, EMÉLÉUS) . . .		600	
Butterworths . . . . .	5 268		
Editorial Board . . . . .	2 000		
Editor . . . . .	1 125	8 393	
Bureau meeting—Leningrad . . . . .	9 548		
Executive Committee meeting—Madrid . . . . .	2 022		
Section Presidents meeting—London . . . . .	361		
Verkade Working Committee—Basle . . . . .	204	12 135	
Administrative and travel expenses President NOYES .	1 360		
Administrative expenses Honorary Treasurer . . . . .	1 244		
Administrative and travel expenses General Secretariat:			
Clerical assistants (salaries) . . . . .	5 300		
Pension funds for clerical assistants . . . . .	2 525		
Stationery, stencils, office material . . . . .	2 620		
Postage fees . . . . .	1 715		
Cables . . . . .	85		
Phone calls . . . . .	100		
Travels of the Secretary General . . . . .	1 100		
Office premises . . . . .	930		
Technical services, printing . . . . .	155		
Photocopies . . . . .	63		
Translations . . . . .	465	15 068	17 672
Comptes Rendus (printing and mailing costs) . . . . .	4 400		
Information Bulletin (printing and mailing costs) . . .	2 775	7 175	
Contribution to ICSU (2%) . . . . .		600	
Grand total . . . . .		78 197	
Meeting Joint Commission on Applied Radioactivity			
Copenhagen . . . . .	3 337		
Meeting Working Committee on Applied Radioactivity			
Vienna . . . . .	1 811	*5 148	

\* subject to reimbursement by ICSU

## Appendix B

## STEROID NOMENCLATURE SUB-COMMITTEE

## Tentative Recommendations

*Introductory remarks*

At Munich in 1959 the IUPAC Commission on the Nomenclature of Organic Chemistry, and the IUPAC Commission on the Nomenclature of Biological Chemistry decided to set up a joint Sub-committee to consider and report to them what extension to or changes in the Definitive Rules for the Nomenclature of Steroids (1957) published by Butterworths (1958) were required in the light of advances made since those rules were formulated. This Sub-committee met at the University, Basle, Switzerland on May 11-13 inclusive. There were present Dr. R. S. CAHN (UK, representing the Commission on the Nomenclature of Organic Chemistry), Dr. H. DANNENBERG (Germany), Professor L. F. FIESER (USA), Dr. H. HEUSSER (Switzerland), Dr. J. JACQUES (France), Dr. W. KLYNE (UK, representing the Commission on the Nomenclature of Biological Chemistry), and Professor T. REICHSTEIN (Switzerland). Various other chemists attended the meetings from time to time, notably Dr. A. GEORG, Professor W. KUHN, Dr. R. MORF and Professor V. PRELOG. It is the intention, as the results of these meetings, to submit to the two Nomenclature Commissions suggestions that certain parts of the IUPAC 1957 Steroid Rules should be amended and that considerable additions should be made to them. These additions and amendments will be put forward as formal rules, but before these rules are themselves drafted, the Steroid Sub-committee would like to have the opinion of interested chemists on the principles which are to be embodied in these rules.

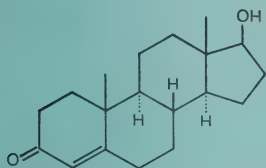
These principles are set out in the report below, which the Secretary General (Dr. MORF) and the Chairmen of the two Commissions concerned have agreed for publication in the IUPAC Information Bulletin. Reprints of this report are being sent to many steroid chemists and further copies may be obtained by those interested, on application to Dr. MORF, the Secretary General of IUPAC, c/o F. Hoffmann-La Roche & Co. Ltd., Basle 2, Switzerland.

Comments from individuals or representative bodies may be sent to any of the members of the Steroid Sub-committee named above. In order that they may be considered in time for submission to the IUPAC Commissions in rule form in 1961, such comments should be received by the members of the Steroid-committee not later than 31 December, 1960.

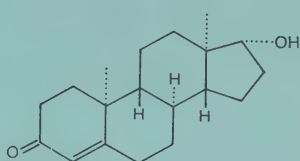
*Nomenclature of antipodes and racemates*

Since the absolute configuration of steroids became known the prefixes  $\alpha$  and  $\beta$  have been used in an absolute sense. The Committee considers this practice should continue. The problem therefore arises of designating the antipodes and racemates of steroids which are being made synthetically in increasing numbers. The Committee considers that this can best be done by use of the prefixes *enantio*- and *racemo*-. The chemical name used describes the absolute configuration and the prefix *enantio* implies that each stereochemical designation stated or implied in the name is reversed. This prefix thus acts as a mathematical operator (cf. a minus sign) reversing everything which follows it. In the same way the prefix *racemo*- is used with the name for one form but means that the substance is composed of equal parts of the

two enantiomeric forms. The prefix *enantio-* is to be abbreviated to *ent-* in names and the prefix *racemo-* is to be abbreviated *rac-* in names when these are written, but it will be convenient to use the full prefixes when the names are spoken as well as in descriptions such as "*enantio*-form" or "racemic substance".

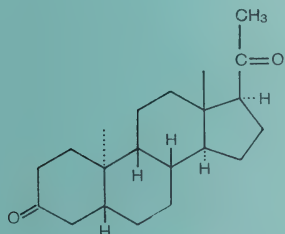


(I)

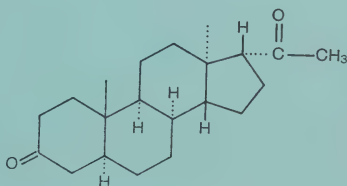


(II)

*E.g.*, substance I is called 17 $\beta$ -hydroxy- $\Delta^4$ -androst-3-one<sup>1</sup>, or, to use its trivial name, testosterone. Substance II is *ent*-17 $\beta$ -hydroxy- $\Delta^4$ -androst-3-one or *ent*-testosterone. *rac*-17 $\beta$ -Hydroxy- $\Delta^4$ -androst-3-one, or *rac*-testosterone, designates a mixture comprising equal parts of I and II.



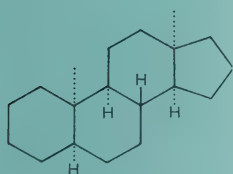
(III)



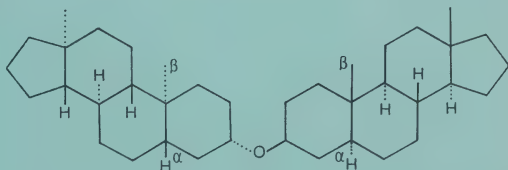
(IV)

Substance III is 5 $\beta$ ,9 $\beta$ ,10 $\alpha$ -pregn-3,20-dione. Substance IV is *ent*-5 $\beta$ ,9 $\beta$ ,10 $\alpha$ -pregn-3,20-dione.

Of the two enantiomers of a substance, that enantiomer whose name has the smaller number of prefixes is to be chosen. *E.g.*, substance V is called 5 $\alpha$ ,10 $\alpha$ ,13 $\alpha$ -androstane (and not *ent*-5 $\beta$ ,8 $\alpha$ ,9 $\beta$ ,14 $\beta$ -androstane).



(V)



(VI)

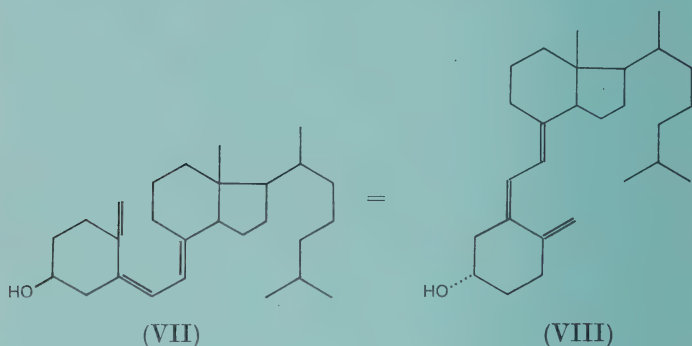
If the number of prefixes in the names of the two forms is the same the decision is taken on a numerical basis; preferences shall follow the sequence 10,13,8,9,14. This will be described in detail in the full rules.

<sup>1</sup> Cf. p. 57



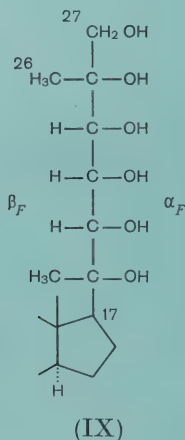
If it is desired to contrast the usual form with its less usual enantiomer the word "normal" may be used, but this would generally not form part of a systematic name.

Formulae may be written in any form, but the customary orientation should be used unless there is some reason against it. It is to be noted that if formulae are written as, *e.g.*, in the left-hand part of VI,  $\beta$ -bonds are designated by broken lines and  $\alpha$ -bonds by full lines. Vitamin D<sub>3</sub> is 3 $\beta$ -hydroxy-9,10-secocholesta-5,7,10(19)-triene or 3 $\beta$ -hydroxy- $\Delta^{5,7,10(19)}$ -9,10-secocholestatriene and may be written as VII or VIII.



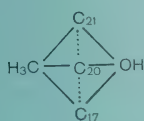
### Open sidechains

For designating the stereochemistry of the sidechain, a modification of the Fischer convention is used. According to this modification the chain is written in a straight line vertically upwards from position 17, as in (IX).

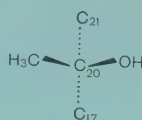


At each asymmetric centre the groups are written as in the Fischer projection (*cf.* formulae X and XI). When the formula is written in this way atoms or groups lying to the left of the main chain are designated by the symbol  $\beta_F$  and atoms or groups lying to the right of the main chain are designated  $\alpha_F$ . It is to be noted that in such formulae the highest number

appears at the top of the chain and the lowest at the bottom, this being the opposite of the customary Fischer convention.

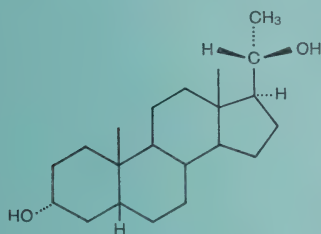


(X)

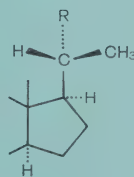
20 $\alpha_F$ -Hydroxy...

(XI)

If a substituent of the chain is named as a prefix, the configurational symbol attached to the name describes the position of that substituent. If the substituent is implicit in the fundamental name, then the configurational symbol is given for the hydrogen atom attached at the position in question. Examples are 5 $\beta$ -pregnane-3 $\alpha$ , 20 $\alpha_F$ -diol (XII) (the common pregnanediol of human pregnancy urine) and 20 $\beta_F$ H-cholesterol (XIII).



(XII)

5 $\beta$ -Pregnane-3 $\alpha$ ,20 $\alpha_F$ -diol

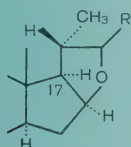
(XIII)

20 $\beta_F$ H-Cholesterol

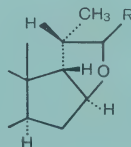
### Etianic acids

The existing IUPAC rules assign the name etianic acid to the androstane-carboxylic acid in which the carboxyl group is in the  $\beta$ -position and add the prefix 17 $\alpha$  to the name of the substance in which the carboxyl group is in the 17 $\alpha$ -position. This leads to difficulties if ring closure takes place between the chain and the main cyclic skeleton.

*E.g.*, furostan (XIV) contains 17 $\alpha$ H, but it is related to 17 $\beta$ -etianic acid (under the present nomenclature).



(XIV)

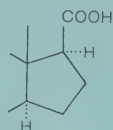


(XV)

17 $\beta$ H-Furostan

To avoid this anomaly it is proposed that in future the name etianic acid shall carry the stereochemical symbol for the hydrogen atom at position 17; the substance (XVI) described in the previous rules as (simply) etianic acid

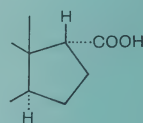
should be called  $17\alpha\text{H}$ -etianic acid, and the substance (XVII) described in the previous rules as  $17\alpha$ -etianic acid and related to  $17\beta\text{H}$ -furostan (XV) should be called  $17\beta\text{H}$ -etianic acid.



(XVI)

$17\alpha\text{H}$ -Etianic acid

= Androstane- $17\beta$ -carboxylic acid<sup>1</sup>



(XVII)

$17\beta\text{H}$ -Etianic acid

If either of the terminal methyl groups of the cholestane side chain is substituted, C-25 is asymmetric; it is therefore necessary to define the way in which the Fischer projection is to be made for this atom.

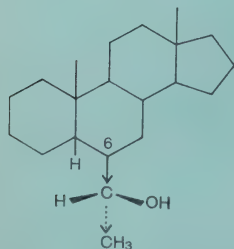
#### Positions 26 and 27

The Committee recommends that the terminal atom carrying the substituent shall have the number 27, and not 26 as illustrated in the existing rules for spirostans. If both C-26 and C-27 carry atoms other than hydrogen the preferences shall be as defined in the full rules to be published.

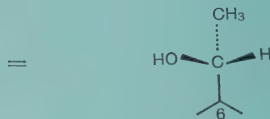
Arguments can be produced against this recommendation, *e.g.* that the chain should be numbered completely before the substituents. However, two arguments in favour of the Committee's recommendations were considered to be more important, namely: (a) in writing a Fischer projection formula substituted groups are considered to form part of the main chain in preference to unsubstituted groups; and (b) it is preferable to treat positions 20 and 25 both as exceptions, rather than to treat position 20 as an exception whilst treating 25 "normally" (it is considered inadvisable for several reasons to alter the established numbering around position 20).

If a carbon chain is attached to the main side chain and is named as the substituent, then the subsidiary side chain is not considered as the main chain for the purpose of the Fischer convention, even if it would thereby have given a longer chain, *e.g.*,  $23\beta_F$ -hexyl- $5\alpha$ -cholestane.

If, at any position in the ring system other than C-17, a side chain is present, which contains an asymmetric centre, this asymmetry is denoted by the prefix  $\alpha_F$  or  $\beta_F$ , which is decided by a Fischer projection in which the ring junction corresponds to position 17 in formula (IX) (cf. example XVIII).



(XVIII)



$6\beta$ -( $1'\beta_F$ -Hydroxyethyl)- $5\beta$ -androstane (the arrows indicate the direction for viewing the projection formula)

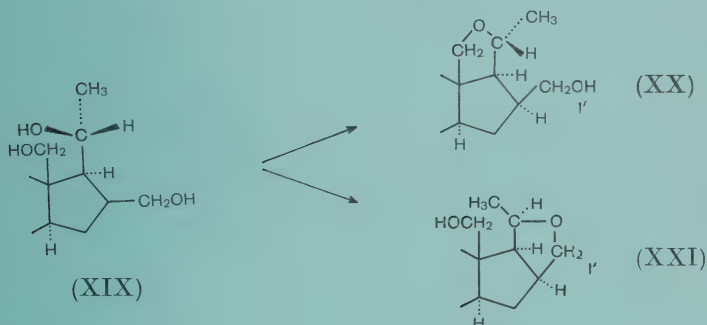
<sup>1</sup> Androstane does not contain the side chain and thus the configuration of the *substituent* at C-17 has to be indicated.

## Additional rings, excluding spirans

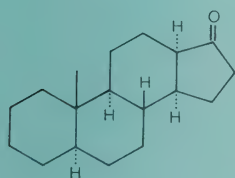
The stereochemistry of additional annelated rings (*i.e.*, rings joined to the main tetracyclic skeleton by fusion at adjacent atoms, the new rings being in approximately the plane of the tetracyclic system) is denoted either by  $\alpha$ ,  $\beta$  used in the same way as for the main skeleton, or by means of  $\alpha_F$  or  $\beta_F$ . For the latter method the compound is considered to be a cyclized form of the corresponding open-chain form and the symbols  $\alpha_F$  and  $\beta_F$  are used as applicable to that hypothetical open form. Thus compound (XX) may be called a 20 $\beta$ H-18,20-epoxypregnane derivative or a 18,20 $\beta_F$ -dihydroxy... anhydride (18,20), and compound XXI may be called either a 1',20-epoxy-20 $\alpha$ H-pregnane derivative or a 1',20 $\beta_F$ -dihydroxy... anhydride (1',20). An advantage of the  $\alpha_F$ ,  $\beta_F$  system for such compounds is that it shows both XX and XXI to be related to the same open-chain precursor (XIX). An advantage of the ordinary  $\alpha$ ,  $\beta$  names is that they show the relation of the substituents at position 20 to the stereochemistry of the whole ring system.

If both of the above systems lead to the same letter, whether it be  $\alpha$  or  $\beta$ , then the suffix *F* may be omitted.

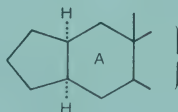
When the asymmetry at a ring junction is not specifically included in a



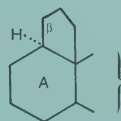
parent name, or when there can be any doubt about the configuration at a ring junction, the configurational symbol should refer to hydrogen (or a substituent at the ring junction) and shall be in a form 13 $\beta$ H or 20 $\beta_F$ H. An example is given in formula XXII: this compound shall be named 5 $\alpha$ ,13 $\alpha$ H-18-norandrostane-17-one. However these principles may not be applied for compounds with additional rings, *e.g.*, XXIII–XXVII.



(XXII)



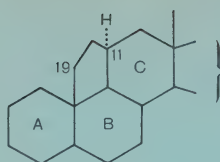
(XXIII)



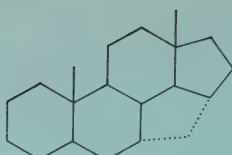
(XXIV)

5 $\alpha$ ,13 $\alpha$ H-18-Norandrostane-17-one 2 $\beta$ ,3 $\beta$ -Trimethylene... 1 $\beta$ ,19-Ethylene...

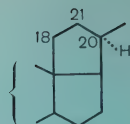




(XXV)

11 $\beta$ , 19-Methylene...

(XXVI)

7 $\alpha$ , 15 $\alpha$ -Methylene...

(XXVII)

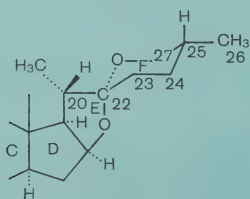
20 $\beta$ -Methyl-18, 21-cyclo...*Spirostans*

Much thought was given to the most convenient stereochemical designation for the important group of the spirostans. The key point is the configuration of the spiroketal atom C-22, which has few close analogies in natural-product chemistry. The Committee agreed that two different systems may be used for the designation of stereochemistry at this point—either the  $\alpha_F$ ,  $\beta_F$  system, the compound being considered with reference to the corresponding open-chain structure, or by designating the position of the oxygen atom of ring F with reference to the general plane of the ring system (22 $\alpha$ -O, 22 $\beta$ -O).

Substance XXVIII is therefore a 22 $\alpha_F$ O-spirostan or a 22 $\alpha$ O-spirostan.

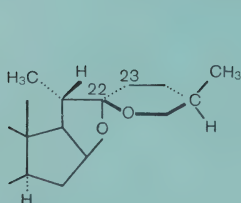
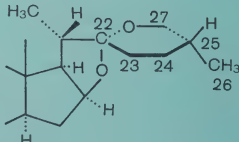
Asymmetry at position 25 is to be denoted by the  $\alpha_F$ ,  $\beta_F$  system. Asymmetry at position 20 may, in these and in other cases, be denoted by the  $\alpha_F$ ,  $\beta_F$  system, or by  $\alpha$  and  $\beta$  with reference to the main ring system. The Committee considered the use of *D* and *L* for asymmetry at position 25, but saw no advantage in using a designation specific only for one position.

Spiro-compounds and related compounds, other than spirostans, are named according to the general principles of organic nomenclature, the stereochemistry being denoted according the principles mentioned above, as in XXX. The names under XXVIII–XXXI illustrate these principles.



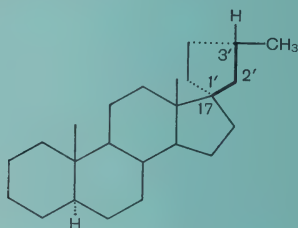
(XXVIII)

20 $\alpha_F$ H, 22 $\alpha_F$ O, 25 $\beta_F$ H-Spirostan  
or 20 $\beta$ H, 22 $\alpha$ O, 25 $\beta_F$ H-spirostan



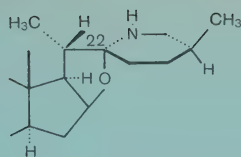
(XXIX)

20 $\alpha_F$ H, 22 $\beta_F$ O, 25 $\beta_F$ H-Spirostan  
or 20 $\beta$ H, 22 $\beta$ O, 25 $\beta_F$ H-spirostan



(XXX)

3' $\alpha_F$ -Methyl-5 $\alpha$ -androstane-17 $\beta$ (2')-spirocyclopentane



(XXXI)

22 $\alpha$ N,25 $\alpha$ F-Tomatanine

When the oxygen in the ring (C22–C27) is replaced by carbon or nitrogen, the same principles are applied (cf. XXXI).

When the ring members of ring F are all carbon it is necessary to decide whether the low numbers 23 ... are assigned to the "back" or the "front" of the ring. This can be done by the standard rules of nomenclature except when identical substituents are present in corresponding positions at each "side" of the ring; in these very rare exceptional cases the lowest number is to be assigned to an  $\alpha$ -substituent (if possible).

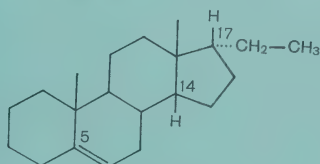
The Committee considered at length also the sequence rule symbols *R* and *S*<sup>1</sup>. It held the opinion that such symbols should be used when  $\alpha$ ,  $\beta$  or  $\alpha_F$ ,  $\beta_F$  could not be used, and would be advantageous when the use of these last symbols led to difficulty or possible ambiguity. The Committee particularly had in mind bridges forming rings not in the plane of the steroid skeleton and spiran rings attached at unusual places, and did not exclude cases such as XXX and those discussed in the preceding paragraph.

#### *Systematic parent names for alkaloids*

The Committee considered various possible ways of providing systematic names for steroid alkaloids. It was felt that names of the type of conanine (HAWORTH, R. D., and MICHAEL, M., *J.Chem.Soc.* (London), 4973 (1957)) would be most suitable for the fundamental heterocyclic structures. Such names have the following advantages: (i) the ending "ine" ("in" in German) indicates basic character; (II) the penultimate syllable "an" for saturated skeletons can be changed to "en" (with preceding numeral  $\alpha$  or  $\Delta^x$  to denote position) for the unsaturated compounds.

#### *Use of the symbol $\Delta$ for double bonds*

The Committee decided to ask the IUPAC Nomenclature Commission of Organic Chemistry to print the steroid rules using the symbol  $\Delta$  to indicate the position of double bonds, because of the special stereochemical problems in the steroid field. The Committee will request IUPAC to state that this system is permitted. *E.g.*, (XXXII) should be named  $\Delta^5$ -14 $\beta$ ,17 $\beta$ H-pregnene or 14 $\beta$ ,17 $\beta$ H-pregna-5-ene<sup>2</sup> (instead of 14 $\beta$ ,17 $\beta$ H-pregn-5-ene).



(XXXII)

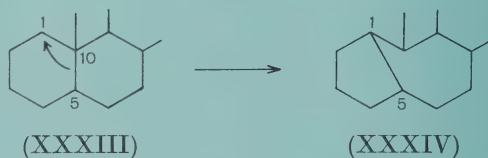
$\Delta^5$ -14 $\beta$ ,17 $\beta$ H-pregnene  
or 14 $\beta$ ,17 $\beta$ H-pregna-5-ene (instead of 14 $\beta$ ,17 $\beta$ H-pregn-5-ene)

<sup>1</sup> R. S. Cahn, C. K. Ingold, and V. Prelog, *Experientia*, **12**, 81–94 (1956)

<sup>2</sup> Note the introduction of the letter "a" for euphony before the numeral(s) denoting the position of the double bond(s).

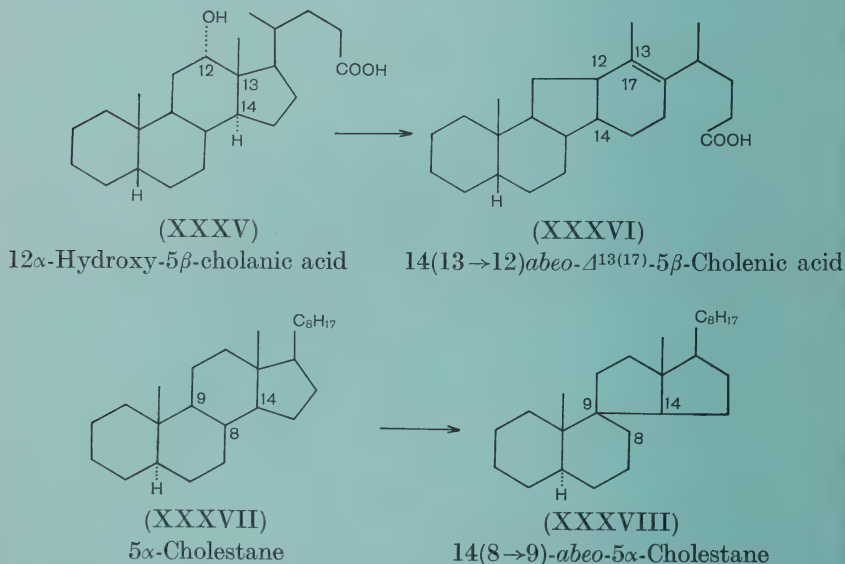
## abeo Nomenclature

The Committee considered proposals, which have been discussed informally by some British terpene chemists at the Chemical Society in London, regarding skeletal modifications. These proposals, due to D.H.R. BARTON, depend on the concept of bond scission and re-formation. A compound is named from a skeleton from which it may be considered to be formed by the scission of one carbon-carbon bond and creation of another. Thus the change XXXIII  $\rightarrow$  XXXIV is considered to be the scission of the C<sub>5</sub>-C<sub>10</sub> bond and the creation of a C<sub>5</sub>-C<sub>1</sub> bond.



The scission of a carbon-carbon bond and the subsequent formation of another involving one of the carbon atoms of the original bond shall be indicated by the prefix *abeo-*, which shall itself be prefixed by a set of numbers as in the sequence 5(10 $\rightarrow$ 1)*abeo-* for XXXIII  $\rightarrow$  XXXIV.

This will indicate that a bond joining one carbon atom (first number cited) to a second carbon atom (second number cited) has been broken, and that a new bond has been formed between the first carbon atom and a third (third number cited). It shall also imply that a hydrogen atom, originally attached to the third carbon atom, has migrated to become attached to the second carbon atom. The numbering of the carbon atoms in the final product shall be that of the parent skeleton on which the name is based. Further examples are XXXV  $\rightarrow$  XXXVI, and XXXVII  $\rightarrow$  XXXVIII.



The Committee felt that this system deserved support and further consideration.

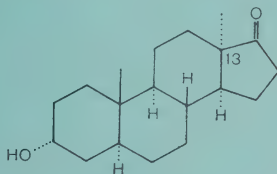
### Trivial names of IUPAC rules S-4.1

The Committee felt that great care should be exercised in the introduction of further trivial names, but that the following names might usefully be added to those which are at present permitted: pregnenolone (3 $\beta$ -hydroxy- $\Delta^5$ -pregnen-20-one), androstenolone (instead of dehydroepiandrosterone or dehydroisoandrosterone (3 $\beta$ -hydroxy- $\Delta^5$ -androsten-17-one), cortexone (as in the CIBA Foundation proposals of 1950, instead of deoxycorticosterone (21-hydroxy- $\Delta^4$ -pregnene-3,20 dione), as in the present IUPAC rules) and cortisolone (17,21-dihydroxy- $\Delta^4$ -pregnene-3,20-dione).

It was proposed that the name "cortisolone" would be a better trivial name for the compound which is at present called "cortisol", since this latter name is very easily confused in speaking with "cortisone". This matter is for further discussion.

### Use of the prefix "lumi"

The Committee decided that the use of the prefix "lumi" should be permitted only for irradiation products of unknown constitution or stereochemistry, or in special cases as trivial names, *e.g.*, lumisterol. It was felt that as soon as the constitution and stereochemistry of these compounds becomes definitely known, systematic names should be used, and the names with the prefix "lumi" should be abandoned. *E.g.*, the trivial name "lumiandrosterone" should be replaced by 3 $\alpha$ -hydroxy-5 $\alpha$ , 13 $\alpha$ -androstan-17-one or 13 $\alpha$ -androsterone for compound XXXIX.



(XXXIX)  
13 $\alpha$ -Androsterone



## Appendix C

### INSTRUCTIONS FROM THE EDITORIAL BOARD REGARDING FUTURE ACTIVITIES

In consequence of the organization of IUPAC publications on a new basis it is necessary to obtain advance information about Symposia arranged under its sponsorship. In some cases the Union will publish the whole or part such Symposia in its official Journal, as already announced in the IUPAC Bulletin. Before decisions are taken about sponsorship or publication, the following information should be supplied for the guidance of the Executive Committee and Editorial Advisory Board.

- (1) Title of Symposium, with sub-divisions if any:
- (2) Commission, Section or Division sponsoring meeting:
- (3) Date and place proposed:
- (4) Approximate number of participants expected:
- (5) Number of papers to be presented, and approximate length:
- (6) Number of specially invited lecturers, if any:

Names of probable invited lecturers:

- (7) Has financial help from the Union been requested?

Already promised?

- (8) In the event of the Union not wishing to publish the proceedings, will the organizers wish to make other publication arrangements?
- (9) What arrangements have been made
  - (i) for the collection of manuscripts
  - (ii) by what date

Has a responsible member been appointed for this purpose?

In order to enable the Union to formulate its policy with regard to the Symposium concerned, the above questionnaire should be completed by those responsible for its organization and sent to the Secretary General and to the Chairman of the Editorial Advisory Board, as early as possible in the planning of the Symposium.

### INTERNATIONAL SYMPOSIUM ON PHARMACEUTICAL CHEMISTRY

We are glad to know that finally it has been possible to draft a programme for the International Symposium on Pharmaceutical Chemistry. This symposium, under the sponsorship of IUPAC, will be organised by the Società Italiana di Scienze Farmaceutiche in Firenze, Palazzo Pitti, on Monday 17, Tuesday 18 and Wednesday 19 September, 1962. The opening will be on Monday 17 September, 1962 at 9 h 30.

#### *Draft programme and subjects for the lectures*

Seven scientists of the following countries: France, Germany, Italy, Switzerland, United Kingdom, URSS, USA will be invited to give lectures of one hour each and will each be followed by two communications of 30 minutes on special subjects, but still in the same field as the lectures. Also the communications will be on invitation; they will be followed by discussion.

First lecture: The regulation of the chemical processes within the living cell (Prof. A. BUTENANDT will be invited to give this lecture).

Second lecture: Drug action in chemical terms.

Third lecture: The chemistry of hormonactive peptides.

Fourth lecture: The chemistry of alcaloids which are active on the nervous system (Prof. JANOT).

Fifth lecture: Synthetic drugs which are active on the nervous system (Prof. BOVET).

Sixth lecture: The chemistry of antibiotics (with antiviral and antimutagenic activity).

Seventh lecture: Synthetic chemotherapeutic agents (with antiviral and antimutagenic action) (Prof. V. PRELOG).

If, after this programme has been established, there should be any important discoveries made, these will be included. A fourth day has already been reserved for the most recent events.

500 to 1000 participants are expected. The Organizing Committee is ready to cater for an attendance of 1000 people.

A reception will be held in Palazzo Vecchio attended by the State Authorities and a post symposium one day excursion to Siena and San Gimignano will be organized.

#### *Publication of the Symposium*

The SISF holds that the contents of the lectures, communications and discussions are of great scientific interest and therefore IUPAC will publish the Symposium in the Journal "Pure and Applied Chemistry".



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**INTERNATIONAL UNION OF PURE  
AND APPLIED CHEMISTRY**

**INFORMATION BULLETIN  
NUMBER 12**

**SECRETARY GENERAL:**

**Dr. R. Morf, c/o F. Hoffmann-La Roche et Cie., SA, Bâle 2 (Suisse)**

**Butterworths Scientific Publications · London**  
**December 1960**





## INTRODUCTION

C'est le 8 novembre, c'est-à-dire le jour même de la parution du premier Bulletin d'Information de cette année, le n° 11, que nous commençons la rédaction du second et dernier Bulletin de 1960. Le nombre limité des numéros nous permet de réaliser des économies considérables, rendues indispensables par les sacrifices énormes prévus pour l'année de la Conférence et du Congrès de Montreal.

### Nomenclature des Stéroïdes

Vous avez trouvé dans le n° 11 les résultats de la réunion à Bâle d'un groupe de travail qui s'est consacré à l'élaboration des Règles de Nomenclature pour les Stéroïdes. Le travail de ce groupe doit être considéré comme un modèle pour les travaux de toutes les Commissions de l'Union: le Professeur T. REICHSTEIN, Président de ce groupe, bien que non membre titulaire de l'Union, a préparé avec des collègues et experts de différents centres de recherches, plusieurs semaines auparavant, tout le matériel nécessaire à la réunion qui fut envoyé à l'avance avec l'ordre du jour à tous les membres.

Au cours de la réunion, qui a duré 3 jours, des experts de plusieurs pays ont pu ainsi concentrer tous leurs efforts sur quelques problèmes fondamentaux réclamant une coordination et un accord sur le plan international. Ce cas peut être regardé – également sous un autre rapport – comme un exemple de coopération internationale: les premières épreuves circulèrent parmi une douzaine d'experts qui les commentèrent. Les secondes épreuves et la mise en page furent ensuite soumises à MM. REICHSTEIN, PLATTNER et HEUSSER qui durèrent, à nouveau, collationner toutes les différentes suggestions avant de pouvoir donner le « bon à tirer ».

Je saisis cette occasion pour tracer brièvement la procédure à suivre au sujet des règles provisoires: tous les pays membres et les centres de recherches sont priés de soumettre leurs commentaires et ce sont le Bureau et le Conseil à Montreal qui accepteront ou non ces Règles provisoires. Dans l'affirmative, elles deviendront définitives en 1963.

C'est donc une procédure longue et compliquée mais dont le résultat définitif est d'une valeur incontestable, faisant autorité sur le plan international.

Les événements suivants ont eu lieu depuis ceux mentionnés dans le Bulletin d'Information n° 11:

- Réunion de la Commission de Géochimie, à l'occasion d'un Symposium sur la Géochimie, Copenhague, juin 1960
- Réunion de la Commission de Chimie macromoléculaire, à l'occasion du Symposium international sur les Macromolécules, Moscou, 15-17 juin
- Réunion de la Commission de Nomenclature organique, avec des représentants de la Commission de Nomenclature minérale, Scheveningue, 11-15 juillet
- Réunion de la Commission de Chimie clinique, à l'occasion du Congrès international de Chimie clinique, Edinbourg, 14-20 août
- Symposium international sur les Produits naturels, Melbourne, 15-25 août  
Sauf erreur, c'est la première activité de l'IUPAC dans un pays lointain, réalisée grâce aux efforts remarquables de nos collègues australiens. Je voudrais attirer votre attention sur le rapport rédigé par l'organisateur de cette manifestation, le Dr A. L. G. REES (voir page 15)
- Réunion de la Division de Fermentation, Zurich, 26 août
- Réunion de la Commission mixte de Radioactivité appliquée, à l'occasion

de la Conférence sur l'Emploi des Radioisotopes dans les Sciences physiques, Copenhague, 5 septembre

- Réunion de la Subdivision des Oligoéléments dans l'Alimentation, Londres, 24 septembre
- Réunion de la Division des Plastiques, à l'occasion du Salon international de la Technique, Turin, 25-28 septembre
- Congrès international de Technologie de la Transformation des Matières plastiques, Amsterdam, 17-19 septembre
- Réunion des 6 Présidents de Section, Londres, 10 octobre
- 45<sup>e</sup> Réunion du Comité exécutif de l'IUPAC, Madrid, 15-17 octobre

Nous sommes restés en contact étroit avec plusieurs organisations internationales: L'Agence internationale de l'Energie atomique à Vienne, l'ISO et la FAO à Rome, et quelques Unions-sœurs où nous avons délégué des représentants. Il n'y a parfois pas mal de chevauchements, dans la manière et dans les buts, parmi les trop nombreux organismes soi-disant internationaux, et une de nos tâches primordiales sera de trouver des lignes de démarcation, bien que nous soyons d'avis qu'une compétition de plusieurs personnes dans le même champ d'activité soit un excellent stimulant.

Les manifestations suivantes furent organisées par les organisations internationales avec lesquelles nous entretenons des relations plus ou moins étroites:

- Réunion de l'ICSU Abstracting Board, Madrid, 15-16 juillet
- 12<sup>e</sup> Assemblée générale de l'Union internationale de Géophysique et de Géodésie, Helsinki, 26 juillet-6 août
- Conférence sur l'Emploi des Radioisotopes dans les Sciences physiques, Copenhague, 6-17 septembre
- 10<sup>e</sup> Assemblée générale de l'Union internationale de Physique pure et appliquée, Ottawa, 7-9 septembre
- 13<sup>e</sup> Assemblée générale de l'Union de Radio-scientifique internationale, Londres, 5-15 septembre
- 4<sup>e</sup> Assemblée générale de l'Agence internationale de l'Energie atomique, Vienne, 19 septembre-1<sup>er</sup> octobre
- 5<sup>e</sup> Réunion plénière de l'ISO, comité technique de la Chimie/TC 47, Rome, 3-6 octobre
- 12<sup>e</sup> Réunion du Comité exécutif de l'ICSU, Lisbonne, 18-23 octobre

#### *Coopération avec l'UNESCO concernant l'enseignement de la Chimie*

Le Directeur adjoint du Département des Sciences exactes et naturelles de l'UNESCO, le Dr H. RODERICK, s'est entretenu avec le Secrétaire général sur les bases d'une coopération étroite entre l'UNESCO et l'IUPAC concernant l'enseignement de la Chimie. Nos lecteurs sont instamment priés de soumettre toutes propositions relatives à ce sujet au Secrétaire général.

#### *Abréviations et symboles des noms chimiques d'un intérêt particulier pour la Chimie biologique - règles provisoires*

Comme dans le Bulletin d'Information n° 11, nous avons le plaisir de soumettre à l'attention de nos lecteurs un autre résultat d'un groupe de travail de la Section de Chimie biologique. Le Président KING me demande d'imprimer et de distribuer les «Abréviations et Symboles des Noms chimiques d'un intérêt particulier pour la Chimie biologique» (voir Annexe B), élaborées sous la direction du Professeur W. KLYNE.

Peut-être vous amusera-t-il de lire ici la remarque qu'un grand savant fit, dans un discours lors d'une séance de clôture, sur ces abréviations en Chimie biologique:

«Alors que, pendant des siècles, on a appris à crier «hip hip hourra», nos biochimistes actuels doivent apprendre «hip hip ala» pour un composé ayant la formule suivante:



*Proposition d'une nouvelle échelle pour les poids atomiques*

Vous vous rappelez certainement la recommandation de la Commission des Poids atomiques faite au Conseil à Munich:

'The Commission on Atomic Weights, with the approval of the Section Committee of the Section of Inorganic Chemistry, recommends to the Council of the Union the adoption of a new scale of atomic weights in replacement of the currently used scale, based on the whole number 16 as the atomic weight of natural oxygen. The recommended new scale is based on the whole number 12 as the atomic weight (nuclidic mass) of the dominant natural isotope of carbon-12. This recommendation is made subject to the provision that action is taken by the International Union of Pure and Applied Physics to recommend the adoption of the same scale in replacement of the scale of nuclidic masses currently used by physicists, which is based on the whole number 16 as the nuclidic mass of the dominant natural isotope of oxygen, oxygen-16.'

Lors de son Assemblée générale à Ottawa, l'Union internationale de Physique pure et appliquée a approuvé cette proposition. C'est donc au Bureau et au Conseil, lors de la Conférence de Montreal, à prendre la décision définitive à ce sujet.



## I. QUESTIONS FINANCIÈRES

Tous nos efforts cette année se sont concentrés sur 1961, qui sera caractérisé par deux manifestations de tout premier ordre

la XXI<sup>e</sup> Conférence de l'Union internationale de Chimie pure et appliquée, 2-5 août

le XVIII<sup>e</sup> Congrès international de Chimie pure et appliquée, 6-12 août 61.

Comme vous le verrez plus loin, nos collègues canadiens travaillent depuis des années à la préparation et l'organisation de la Conférence et du Congrès. Il ne suffit donc pas de leur exprimer nos félicitations et notre reconnaissance mais nous devons tenter l'impossible pour faciliter une participation en rapport avec l'importance de ces manifestations et garantir un succès récompensant les sacrifices consentis par nos amis canadiens. Les premières victimes de nos efforts dans ce but seront nos réserves financières, et quelques Sections, Divisions et Commissions qui devront renoncer à une subvention ou à une activité quelconque en 1961 pour permettre à leurs collègues de se rendre au Canada. Nous avons déjà réalisé des économies considérables en 1960, bien que la décision prise à Munich de rembourser, pour la première fois, des frais de subsistance aux membres titulaires ait entamé nos réserves plus que prévu.

Le premier budget, établi très soigneusement, prévoyait des dépenses de l'ordre de \$213 000 alors que notre revenu ordinaire ne dépassera pas \$40 000. Les autorités de l'Union, le Comité exécutif et les Présidents de Section ont porté tous leurs efforts dans les deux directions suivantes: augmenter notre revenu et réduire nos dépenses.

Il m'est agréable de signaler à ce propos que 3 pays membres ont, déjà en 1960, volontairement augmenté leur cotisation par des dons considérables aussi cet exemple nous permet d'espérer que nos revenus en 1961 seront un peu mieux appropriés aux dépenses que par le passé.

Quant aux économies, il est intéressant de savoir que toutes les variantes possibles en ce qui concerne le budget ont été soumises au Comité exécutif, variantes tendant toutes à réduire le déficit. Finalement, des restrictions draconiennes se sont tout de même révélées indispensables. Toutes les Divisions et Commissions, qui se sont rencontrées en 1960, doivent nolens volens renoncer à se réunir à Montreal. Nos collègues américains ont, heureusement, bien voulu assumer les frais de la réunion des Commissions de Nomenclature. Toutes ces mesures, toutefois, n'ont pu éviter de demander aux membres du Bureaux et aux membres titulaires des sacrifices qui n'empêcheront pas nos réserves d'être dangereusement compromises. Il nous faudra, en conséquence, instaurer en 1962 (année sans Conférence) un régime rigide d'économies afin de renflouer nos réserves.

Les chiffres du Budget 1961 (voir Annexe A) sont basés sur les principes suivants:

membres titulaires résidant en Amérique du Nord, au Mexique et au Canada  
frais réels de transport (classe touriste) + \$50 frais du séjour

membres titulaires résidant en Europe, frais transport maximum \$400\* + \$150 frais de séjour

membres titulaires résidant dans les autres parties du monde, frais réels de transport (classe touriste) + \$150 frais de séjour

Les pays membres qui ne sont pas à même d'augmenter leur cotisation à l'Union, en proportion avec le nombre de leurs membres titulaires, seront

\* Si le projet d'organiser des voyages par groupes (voir page 6) se réalise, toutes les subventions pour frais de voyage seront réduites aux frais de transport réellement payés.

priés d'assumer eux-mêmes les frais de transport de ces membres, comme ce fut du reste toujours le cas pour les délégués nationaux à la Conférence.

Je pense utile de vous rappeler ici la procédure à suivre pour obtenir le remboursement des frais de voyage et de séjour :

*Procedure how to make claims for travel and—if entitled to—for subsistence allowances*

It is well understood that the Honorary Treasurer and the Secretary General are in the first instance the obedient servants of the member countries and Titular Members. Our first concern therefore is to interfere as little as possible with administrative regulations, etc. The easiest way for us would be to distribute the funds of the Union at the beginning of the year and to let all Sections, Divisions and Commissions deal with their money as they like. Yet, such a procedure would doubtless result in insolvency for the Union because the expenses budgeted are much higher than the income and, moreover, this income is received toward the end of the year only. Nolens volens, we must therefore ask for a minimum of formalities and we kindly invite all Secretaries of Sections, Divisions and Commissions to be good enough to lend us their valuable help.

The best way to facilitate payment of travel and, if any, subsistence allowances and to avoid additional costs and superfluous administrative formalities would be for the Secretaries of Sections, Divisions and Commissions to inform the Secretary General in good time about all details of the meetings proposed and to ask for the claim forms. These claim forms should be sent, *together with the invitation and the agenda* for the meeting, to the members of Sections, Divisions and Commissions who are requested to complete them. They should be signed and countersigned by the Section President and subsequently forwarded to the Honorary Treasurer who will make the necessary arrangements through the Union's bankers for payment of the allowances at the meeting of the Section, Division or Commission.

It is well understood that only Titular Members who are listed in the Comptes Rendus and who attend the full meeting are entitled to receive travel allowances.

In the rare and exceptional case when a Section has elected Titular Members during the interval between two Conferences—*provided that approval in writing has been given by the Executive Committee*—other than those Titular Members listed in the Comptes Rendus may be paid travel allowances.

Le budget ne prévoit aucun poste pour dépenses imprévues. Il est donc évident que les chiffres donnés ci-après doivent être considérés comme dépenses maximales. Aucune Section, Division ou Commission n'a le droit de mettre à découvert les montants prévus dans le budget ou de disposer d'un surplus éventuel, au cas où les dépenses en 1961 seraient inférieures au montant prévu. Les sommes économisées devront être retournées aux fonds centraux de l'Union internationale de Chimie pure et appliquée.

J'ai longuement hésité et cherché un moyen avantageux de transport pour tous ceux qui aimeraient visiter Montreal. Finalement, encouragé par les Présidents de Section, j'ai rédigé et distribué les circulaire et questionnaire suivants:

**International Union of Pure and Applied Chemistry  
IUPAC Montreal Congress and Conference, July–August 1961**

**TRAVELLING ARRANGEMENTS**

4455

It is appreciated that many intending participants in the above Congress and Conference will make their own travelling arrangements. Nevertheless there will no doubt be many who would be desirous of joining a scheme whereby significant reductions in cost could be obtained. The Union is particularly interested in such a scheme as it has a very considerable financial interest in the cost of transportation of many of its members. To that end preliminary enquiries have been made both for air and sea travel but arrangements cannot progress much further without some indication of the likely number of people who might be interested. It is for that reason that this circular is being issued both to members of IUPAC and to others desirous of attending the Congress.

If interested you are therefore invited to complete the attached questionnaire bearing in mind that *your answers are not intended to bind you in any way*. The questionnaire is simply to give the organizers some indication of

- (1) the number of people interested
- (2) the geographical distribution of those people in Europe
- (3) their approximate requirements as to date of departure from their home country
- (4) their anticipated date of return from the American continent
- (5) the place from which the return is desired, i.e. by air or ship from Montreal or New York, or by air from Vancouver (Polar route)

When considering this provisional proposition the following points should be borne in mind as they represent the advantages and disadvantages which are expected to operate:

- (a) Travellers may, if they so desire, travel one way by air and the other by sea
- (b) Better terms are likely to be obtained, particularly for air services, the more evenly spread are the times of travel over the period indicated
- (c) Flexibility is another factor affecting (b). E.g. it is important to know whether your requirements may be varied by a day or two
- (d) The days of departure (of planes) from the cities named are likely to differ
- (e) There may not be a place available on an aircraft on a convenient day at your nearest air terminal (e.g. London). In that event you may fly (without extra charge) to another air terminal (e.g. Paris) to catch a plane there
- (f) The reduced rate may be as low as 60% of the tourist fare
- (g) Those who obtain a travel allowance from IUPAC may travel one way according to the special scheme and may make their own travel arrangements for the return journey
- (h) *Insurance*. Please inform your personal Insurance Company. Air transport Companies, according to IATA Regulations, guarantee a limited sum only



Will you please complete the questionnaire in the light of your present knowledge of your expected requirements and return it as soon as you possibly can.

1 November, 1960

Dr RUDOLF MORF

Encl.

### **Tentative Travel Arrangement for Montreal 1961 (IUPAC)**

Name (Names of those accompanying you

Address (

Please insert crosses (X) to indicate the destination, route and date of travel desired. To assist the organization of the travel arrangements please also indicate alternative dates of travel (see c).

#### *Outward journey*

	Destination		July	August
By air from	to	via	(date)	(date)
London				
Paris				
Copenhagen				
Frankfurt				
Zurich				

By sea from  
Southampton  
Le Havre

#### *Return journey*

	Destination		August	September
By air from	to	via	(date)	(date)
Montreal				
New York				
Vancouver				
(via Polar route)				

By sea from  
Montreal  
New York

Please forward one copy of this document as soon as possible to Dr R. MORF, c/o F. Hoffmann-La Roche & Co. Ltd., Grenzacherstrasse 124, Basle 2, Switzerland.

(Une bonne idée serait d'affréter un bateau et d'y organiser le Congrès et la Conférence à bord...)



## II. RELATIONS AVEC L'ICSU

Le Président NOYES et le Secrétaire général, en leur qualité de membres du Comité exécutif de l'ICSU, ont assisté à la réunion de Lisbonne (cette rencontre au Portugal nous a permis de convoquer le Comité exécutif de l'IUPAC avec un minimum de frais de voyage). Les problèmes de l'ICSU et les décisions et propositions faites à Lisbonne ne seront rendus publics que lorsque nous aurons reçu les procès-verbaux.

Le Bureau des Résumés analytiques de l'ICSU (IAB), dont le Secrétaire général est membre du Comité exécutif, a aussi tenu une séance dans la péninsule Ibérique. L'IAB a ébauché ses premiers travaux dans le but d'obtenir un résultat favorable dans le domaine des résumés analytiques des sciences biologiques. Des démarches ont également été entreprises, tendant à une collaboration plus étroite entre tous ceux qui s'occupent de documentation.

La chimie possédant déjà les organisations de classification, d'index, etc. les mieux outillées, il est difficile d'augurer des avantages que l'IAB pourra lui apporter.

### Joint Commission on Applied Radioactivity

#### *Minutes*

of the meeting held in Copenhagen on 5 September 1960

- Present: Dr. SELIGMAN, President  
Prof. FEATHER (IUPAC)  
Dr. MORF (IUPAC)  
Prof. PEREY (IUPAC)  
Dr. REICHARD (IUBS)  
Mr. FISHER, Secretary
- Absent: Prof. CALVIN (IUBS), Dr. ELLIOT (IUPAC),  
Prof. DE HEVESY (IUB), Prof. VON MURALT (IUPS),  
Prof. WILSON (JUGG)

The President opened the meeting and thanked the Danish Atomic Energy Commission for offering the necessary facilities.

(1) *Minutes of the last meeting*: The minutes of the meeting held in Paris on 27 October 1959 were approved.

It was decided that in future the secretary will send the draft minutes to the members of the Commission after they have been approved by the president. Only after comments have been given by the members will the minutes be sent to the Secretary General of IUPAC for publication.

(2) *Dissemination of information*: A list of references of interest to people not working in the field of radioactivity had been prepared by the IAEA and was very recently sent by the Secretary General to about 250 institutions, asking for their comments on the usefulness of such work.

So far only a very small number of answers had been received, containing divergent opinions. The Commission will wait for more answers before deciding whether to continue with this work and, if so, whether to change the presentation.

(3) *Usefulness of radium as a standard*: The group appointed by the Commission under the chairmanship of Professor KARLIK met in Vienna on 13 and 14 June to study the problem of the usefulness of radium as a standard for the measurement of ionizing radiation. A report of this meeting was distributed to the members of the Commission.

Taking into account the views contained in this report and after thorough discussion the Commission agreed on the following points:

An actual radium source is not well suited as a standard except for radium itself. The need seems to be for a standard method to be chosen for each radioactive nuclide or group of nuclides with similar radiation properties.

Professor FEATHER suggested that it should be possible to select a limited number of radioactive nuclides of conveniently long half life and different radiation energies and to ascribe a standardized method to the measurement of each of these species. This method should be verified by exchange of samples between relevant laboratories. It should then be possible to relate every radioactive nuclide to one of the selected group having similar characteristics in order to apply the right method of standardisation.

This approach was approved by the Commission and it was recommended that this should be conveyed by the president to the International Atomic Energy Agency, the International Commission of Radiological Units, the International Standards Organization and the Bureau of Weights and Measures as well as the leading national laboratories engaged in the preparation of radioactive standards. Comments will be asked for and it is thought essential that a meeting should then be arranged to select convenient radioisotopes and related methods.

(4) *Ownership of radium standards:* The Commission recommended that, in order to come to a satisfactory solution, steps should be taken by the president suggesting to the International Bureau of Weights and Measures that one of the two Hönigschmidt standards be left in Paris and the other be transferred to the standardization laboratory of the IAEA in Vienna.

#### (5) *Conferences and Symposia*

*Symposium on Tritium:* The symposium on tritium, which had been suggested by the Commission, will be organized by the IAEA in collaboration with the Commission in May 1961. Its title will be 'Symposium on the detection and use of tritium in the physical and biological sciences.' The place for this meeting is yet to be decided on.

*Symposium on age determination:* The Commission recommended that an opportunity be given to all persons interested in age determination to describe and discuss the latest developments in the field and that a symposium on all possible radioactive methods of age determination be organized at the beginning of 1962. A budget will be submitted to ICSU for this symposium which could be co-sponsored by the IAEA.

*Use of radioisotopes in biological sciences:* A conference on the above subject is being organized by the IAEA from 23 August until approximately 1 September 1961.

The Commission recommended that survey papers be invited for the first two days so as to give non-specialists the opportunity of being informed about the possibilities offered by the isotope techniques in this field.

(6) *Use of big radiation sources for chemists and biologists:* The Commission recommended that the IAEA be asked to prepare a list and description of existing radiation sources which can be loaned either free of charge or at a certain cost, to perform studies under radiation. People could thus make use of existing facilities without having to bear the high cost for the installation of such sources.

(7) *Radiation emergency measures:* Professor PEREY raised the question of the possibilities of giving help in cases of radiation emergencies. It was pointed out that inside a country the national authorities are dealing with this problem and internationally a roster is being prepared by the IAEA to give help in cases where no specialists are available in the countries concerned,

so that in a case of emergency specialists can be directed to the place of the accident from neighbouring countries.

The same method would apply also in the case of advice on treatment of radiation damage.

No further action therefore seemed necessary on the part of the Commission.

(8) *Next meeting:* The next meeting will take place just before the beginning of the Conference on the use of isotopes in the biological sciences, i.e. presumably on 22 August 1961, the place to be decided later.

## **International Atomic Energy Agency**

### *Symposium on the Detection and Use of Tritium in the Physical and Biological Sciences (May 1961)*

#### (1) *Proposed scope of the symposium:*

- (a) Production of tritium and preparation of tritiated compounds. Nuclear reactions for the production of tritium. Techniques for the preparation of tritiated compounds.
- (b) Methods of detection and measurement.
- (c) Isotope effects of tritium with particular reference to the practical aspects, including isotopes effects in biological systems.
- (d) Tracer applications in chemistry, physics and biology.
- (e) Applications of tritium in meteorology and hydrology. Distribution of tritium in nature. Studies of water movement. Methods of concentration of tritium (electrolysis, chromatography, thermal diffusion and others).

(2) *Abstracts:* Abstracts of 200 to 250 words should be submitted on the forms before 5 December 1960. A set of five copies must be provided for each abstract and sent, *through official channels*, to the Director General of the International Atomic Energy Agency, Kärntnerring, Vienna I, Austria.

The abstract should be submitted in one of the working languages of the Agency (English, French, Russian or Spanish). A translation into one or more additional working languages would be appreciated, but is not required.

A scientific committee will evaluate the abstracts in order to make a selection of papers for oral presentation and subsequent publication in the proceeding of the symposium. Abstracts dealing with subject matters outside the announced list of topics cannot be accepted. All accepted abstracts will be reproduced in the four working languages of the Agency and sent to the participants free of charge before the symposium.

(3) *Papers:* Papers should be submitted before 1 March 1961. A set of five copies must be provided for each paper (but drawings and illustrations suitable for reproduction in one copy only) and sent to the Scientific Secretariat (see address below). They should be submitted in one of the working languages of the Agency. A translation into one or more additional working languages of the Agency would be appreciated, but is not required.

Papers should be *short*.

These papers will be reproduced by the Agency in the form of 'pre-prints' in the language (languages) received, and one set of copies will be available to each of the participants free of charge at the beginning of the Symposium. In order to facilitate reproduction without delay and additional correspon-



dence, the authors are kindly requested to follow the enclosed 'Notes for Guidance of Authors'.

It is planned to publish the proceedings of the meeting as soon as possible. For this reason the scientific secretary and his assistants will prepare the text material before and during the Symposium and may wish to discuss editorial changes with the authors while at the meeting.

When presenting a paper slides and other visual aids may be used at the authors' discretion but the manuscripts submitted for subsequent publication should contain as few figures as possible. Wherever feasible such figures should be replaced by tables or narrative passages which can be typeset. Fifty reprints of each printed paper will be supplied to the authors free of charge.

(4) *Slides and drawings for presentation.* Slides of the following sizes may be shown;  $5 \times 5$ ;  $8.5 \times 8.5$ ;  $8.5 \times 10.5$ ;  $9 \times 12$  cm. Drawings should not exceed a size which can easily be reproduced by an ordinary epidiascope.

(5) *Languages:* Papers should be presented and discussion carried on in one of the working languages of the Agency; simultaneous interpretation into the three other working languages will be provided by the Agency.

(6) *Participation:* Participants can be accepted only when nominated by their governments (Member States of the Agency), or by invited international organizations. Neither the Agency nor the Joint Commission on Applied Radioactivity will pay the travel and other expenses of the participants.

(7) *Correspondence:* The list of persons nominated and the abstracts should be sent to the Director General of the International Atomic Energy Agency, Kärntnerring, Vienna I, Austria.

It is requested that participants complete the enclosed form (one for each participant); these should reach the Agency as soon as possible.

Any other correspondence (including selected papers) should be addressed to:  
Secretariat, Symposium on Tritium  
International Atomic Energy Agency  
Kärntnerring 11  
Vienna I, Austria

Additional forms can be obtained from the Secretariat of the Symposium.

(8) Further information (including the detailed program) will be circulated among the participants at a later date.

### **Special Committee on Antarctic Research (SCAR)**

*Draft of Paper for 'Conservation of Nature' Item on Agenda of 4 Scar  
(Ref. SCAR Circ. No. 38, dated 19 April, 1960)*

Item (e) of preliminary Agenda reads:

'Conservation of Nature in Antarctica. Specific recommendations on which to base regulations are needed.'

Also ref. Report of Working Group on Biology at 3 SCAR; SCAR Bulletin No. 3, p. 594.

Item (3) reads:

'The need for conservation of Antarctic flora and fauna was noted, and the study of means of protection recommended.'

#### *General Considerations*

(1) The Antarctic fauna and flora merits conservation for its unique scientific importance and its high aesthetic value. It exists, especially at



higher latitudes in a natural and virtually unimpaired state. Nature conservation is a scientific matter, and it will be to the discredit of the scientists who are mainly responsible for man's present activities in the Antarctic if effective measures are not taken now to ensure that future generations will equally enjoy this heritage.

(2) Cooperative and coordinated measures by all nations throughout the Antarctic region are required. Political boundaries have no significance for migrating animals, and rare and interesting species are, in a very real sense, the property of the whole world.

(3) The scientific approach is the sound basis for effective long-term conservation of nature. This entails:

(a) Recognition of the factors which are important in determining the survival, distribution and abundance of plants and animals, namely maintenance of their environment (especially their foods and breeding-places) as well as freedom from destruction by man and exotic animals against which they have no adequate defences.

(b) Recognition that utilization of Antarctic flora and fauna by man and domestic animals for economic and scientific purposes will deplete these assets if the amounts taken exceed those which are readily replaced.

(c) Recognition that sound conservation measures must be based on good information and research at two levels – (i) surveys of the distribution, abundance and seasonal movements of species; (ii) studies of the essential requirements of important species, especially breeding-places and food at all seasons.

(4) Public good will is all-important in prevention of the more direct forms of damage and interference, which result largely from unawareness of the effects of human action. An interesting information service about the local flora and fauna, and explanation of the local conservation plan, is essential at each station.

(5) It is pointed out that the SCAR 'Antarctic' area is bounded by the Antarctic Convergence, and may also include nine sub-antarctic islands (SCAR Bulletin No. 1, p. 364). The Antarctic Political Conference treaty applies only south of 60 °S., whereas various nations have jurisdiction (including laws concerning flora, fauna, sealing, inshore fishing and so on) over their own sub-antarctic islands.

Some member nations of SCAR have issued fauna regulations to their personnel at Antarctic Stations.

### *Information Required*

(1) What national laws, regulations, ordinances, etc. are in operation at present concerning conservation or utilization (sealing, inshore fishing, collection under permit, grazing, and so on) of fauna and flora of the Antarctic Continent and Antarctic and sub-antarctic islands?

Member nations to supply two copies of acts, etc. and any other information to Secretary of SCAR as soon as possible, for translation and summary in time for 4 SCAR Conference.

(2) What information of a biological survey nature is available for stations and islands in the Antarctic, to serve as basis for selection of –

(a) areas most suitable for nature reserves,

(b) species (usually rare, or particularly threatened) most in need of protection.

Member nations to consult biologists and others interested, and to inform Secretary of SCAR as soon as possible, for consolidation of information in time for 4 SCAR Conference.

(3) Member nations to send any other comments on the subject of Conservation of Nature in the Antarctic to the Secretary of SCAR by 1 August, in time for distribution as Conference papers.

### *Suggested Recommendations*

(1) In order to coordinate measures for the conservation of nature throughout the Antarctic region, and to ensure common aims and uniformly high standards, SCAR should draft outline regulations in a form likely to be acceptable to all member nations and applicable to areas both north and south of 60 °S.

(2) These outline regulations should propose that all flora and fauna on land and in offshore waters up to a stated distance from land (to protect food supplies of breeding seabirds and seals) are fully protected from destruction and interference, with stated exceptions.

(3) Rare species in special need of protection should be listed.

(4) Pest species (exotic species harmful to indigenous flora and fauna) should be exempted from protection, and measures outlined to control them.

(5) Introduction of exotic species should be prohibited.

The numbers of domestic species should be kept to a minimum and strict measures to prevent free ranging enforced.

(6) Provision should be made for permits to take protected species for scientific or domestic use. The species, sex, age, size, number, season and locality should be specified, and records of all specimens collected should be kept.

Permits for commercial purposes should be equally specific.

The principle in all permits should be the value or necessity of taking fauna or flora, and the amount taken should be kept to the minimum necessary and should never deplete local stocks.

(7) Nature reserves containing representative fauna and flora should be established at each station and clearly delimited on the map and the ground. These should be complete sanctuaries, where no interference with fauna and flora is permitted, and where access is limited as required in the interests of the fauna.

(8) Study area should be similarly delimited so that accidental disturbance is prevented.

(9) Provision should be made for special local regulation to deal with wanton destruction or unintentional disturbance by dogs, emptying of ships' bilges, helicopters, vehicles, sight-seers and so on.

(10) The Officer-in-Charge of each station should be responsible for conservation of nature and implementation of regulations. He should furnish an annual report on the fauna and flora and on the standard of conservation.

(11) Good propaganda in the form of interesting illustrated literature and instruction on the local fauna and flora, and on the aims and necessity for conservation, should be available at each station. All who visit the station, even for brief periods, should be made familiar with the regulations and their own responsibility to keep them.

### III. RELATIONS AVEC LES PAYS MEMBRES

#### *Australia*

The Council of the Australian Academy has appointed the following National Committee for Pure and Applied Chemistry to hold office until June 1963:

Dr A. L. G. REES, FAA (Convener)

Prof. N. S. BAYLISS, FAA

Prof. C. W. SHOPPEE, FAA

Prof. R. J. W. LEFEVRE, FAA

Prof. V. M. TRIKOJUS, FAA

Prof. J. A. PRESCOTT, FAA

Dr. I. W. WARK, FAA

Dr J. R. PIRCE, FAA

#### *Venezuela*

Ce pays qui, depuis de nombreuses années déjà, ne payait plus sa cotisation, a annoncé maintenant sa décision de se retirer de l'Union internationale de Chimie pure et appliquée, démission qui devra être ratifiée par le Bureau et le Conseil à Montreal en 1961.

Nous regrettons vivement cette décision et espérons que nos amis vénézuéliens trouveront un organisme national disposant des moyens financiers lui permettant de continuer à payer une cotisation annuelle qui est d'ailleurs bien minime en regard des avantages que retire le Venezuela de la pétrochimie.

#### *Viet-Nam*

Nous avons reçu la lettre suivante de M. le Professeur LE-VAN-THOI, Président de la Société chimique du Viet-Nam, que nous vous communiquons pour information:

Prof. LE-VAN-THOI  
Saigon

Monsieur le Secrétaire général,

J'ai bien reçu votre lettre du 10 juin et suis heureux de vous fournir ici les renseignements demandés.

L'Université est transférée au Viet-Nam depuis 1955. Elle comprend trois centres: Saigon, Hué et Dalat. L'Université de Saigon est la plus importante. La Faculté des Sciences qui en relève, encore à l'état embryonnaire, ne possédait pas de laboratoires de recherches en Chimie. Mais grâce à des efforts soutenus, nous avons pu installer des laboratoires modernes dotés d'un bon équipement.

La Société chimique du Viet-Nam se développe au sein de la Faculté des sciences de Saigon. Un groupe de chimistes travaillent en collaboration étroite avec les pharmaciens, médecins et biologistes. Les recherches portent d'une part sur les synthèses organiques et d'autre part sur l'étude des produits naturels: terpènes, stéroïdes, alcaloïdes, extraits des plantes médicinales et industrielles du pays.

Des chimistes viet-namiens, membres de notre Société, travaillent également à l'étranger (France, Angleterre, Allemagne, Etats-Unis, etc.).

En dehors des réunions où sont exposés les travaux de recherches et des mises au point ou des conférences d'intérêt général, la Société chimique du Viet-Nam vient de créer une «Commission de Nomenclature» chargée d'élaborer et d'unifier le vocabulaire chimique en viet-namien, dans le but d'édifier la chimie viet-namienne.

La Société fera paraître à partir de l'année prochaine un «Bulletin de la Société chimique du Viet-Nam». Entre temps, les travaux de chimie sont



publiés dans les « Annales de la Faculté des Sciences de Saigon » ou dans les périodiques étrangers.

Le Conseil d'Administration de la Société chimique du Viet-Nam pour l'année 1960 est ainsi constitué:

Président	Prof. LE-VAN-THOI, doyen de la Faculté des Sciences de Saigon
Vice-président	Prof. TRUONG-VAN-CHOM, professeur à la Faculté mixte de Médecine et de Pharmacie, Saigon
Secrétaire général	M. CO-TAN-LONG, Chef du Département de Chimie organique à la Faculté des Sciences, Saigon
Secrétaire	M. NGUYEN-VAN-HOANG, Chef de travaux à la Faculté des Sciences, Saigon
Trésorier	Prof. VU-NGOC-TRAN, Professeur à la Faculté mixte de Médecine et de Pharmacie, Saigon

Je vous prie d'agréer, Monsieur le Secrétaire général, l'assurance de ma considération distinguée.

signé: Prof. LE-VAN-THOI

### **IUPAC Symposium on the Chemistry of Natural Products, Australia, 1960**

About 600 scientists and their wives attended the first IUPAC Symposium on the Chemistry of Natural Products held in Melbourne, Canberra and Sydney during August this year. The occasion was certainly a stimulating experience for Australian chemistry and chemists and the organizers sincerely hope that our oversea visitors felt that the time and money involved were profitably spent.

The high standard of the scientific programme was set by the 15 special lectures which formed the programme's framework. Professor Sir ALEXANDER TODD delivered the Symposium Presidential Lecture in the Conference Chamber of the Australian Academy of Science in Canberra before an audience which included many representatives of the diplomatic corps on the topic 'Natural Product Chemistry—Retrospect and Prospect'. Professor A. STOLL, Past-President of IUPAC, delivered the address at the Opening Ceremony in the Wilson Hall, University of Melbourne, on 'The Impact of Studies of Natural Products on Chemical Industry', and Sir ROBERT ROBINSON summarized the scientific achievements of the Symposium at the Closing Ceremony in the Great Hall of the University of Sydney. Symposium lectures were delivered by Professor F. ŠORM, Dr. H. W. THOMPSON and Professor R. B. WOODWARD, a special lecture on 'Australian Natural Product Research' by Dr. J. R. PRICE, and Section lectures by Professor D. H. R. BARTON, Professor H. BROCKMANN, Dr. J. W. CORNFORTH, Professor C. DJERASSI, Professor T. R. GOVINDACHARI, Professor E. LEDERER, Dr. A. McL. MATHIESON and Professor N. A. SØRENSEN. It was unfortunate that Professor R. KUHN, who was to have delivered one of the Symposium lectures, was unable to attend owing to ill health. The 160 research communications were presented at the 32 scientific sessions, which, because of the size of the programme, had to be run in groups of three or four concurrent sessions. Research communications have been published in abstract form only, but the special lectures will appear in a single volume published by the official IUPAC publishers, Butterworths Scientific Publications, London. The 26 technical and sight-seeing excursions were well attended; perhaps the highlights were the six-day post-Symposium excursions to the tropical rain forests of Northern Queensland and New Guinea respectively.



Official receptions to delegates were tendered by the Prime Minister of Australia in Canberra and the Premiers of Victoria and New South Wales in Melbourne and Sydney respectively. These functions enabled overseas visitors to meet diplomatic and consular representatives, members of the Federal and State Parliaments, and senior representatives of the academic and business communities. Eight social functions and 10 excursions and social events for the ladies were interspersed through the programme. Many other informal social functions not forming part of the official programme were provided by industrial firms and private individuals. Most of the official hospitality provided during the Symposium was made possible by the generous support of the Hospitality Fund by Australian industry.

Final enrolment statistics were as follows: –  
Total active membership – 482, of whom 145 were from 30 overseas countries;  
Total accompanying members – 120, of whom 25 were from overseas.

A. L. G. REES,  
*Chairman and Convener*  
*Symposium Organizing Committee*

### **International Symposium on Inorganic Polymers**

A Symposium on Inorganic Polymers, sponsored by The Chemical Society, will be held at the University of Nottingham from 18–21 July, 1961. The Symposium will consist of Main Lectures and Contributed Papers, and the Opening Address will be given by Dr. J. S. ANDERSON, FRS (National Chemical Laboratory, Teddington).

Speakers who have agreed to give Main Lectures include J.C. BAILAR (University of Illinois), A. B. BURG (University of Southern California), G. GEE, FRS (University of Manchester), A. W. LAUBENGAYER (Cornell University), O. SCHMITZ-DUMONT (University of Bonn), and E. THILO (Deutsche Akademie der Wissenschaften, Berlin). It is hoped that one of the main lectures will also be given by a speaker from the USSR.

The number of contributed papers has had to be limited and persons wishing to present a paper should submit the title and a summary of about 250 words not later than 1 January, 1961, to the Secretary, International Symposium on Inorganic Polymers, Department of Chemistry, University of Nottingham, Nottingham, England. Each speaker will be allowed 15 minutes to present his paper, and there will be time available for discussion.

Contributed papers will be divided into the following Sections: –

- (1) Polymers containing transition metals including co-ordination polymers, polyacids, etc.).
- (2) Polymers containing a Group III element (e.g. polymeric compounds of boron or aluminium).
- (3) Polymers containing a Group IV element (including polymetallosiloxanes, silicones, silicates, etc.).
- (4) Polymers containing a Group V element (e.g. polymeric compounds of nitrogen and/or phosphorus, and the polyphosphates).
- (5) Polymers containing a Group VI element (e.g. the homochain and heterochain polymers of sulphur).
- (6) Other aspects not conveniently classified under any of the above sections (e.g. analytical methods).

Many heterochain polymers fall into more than one of the above sections, but closely related types of polymers will, as far as possible, be grouped together in the programme. The term 'inorganic polymer' will be inter-

preted widely, and does not necessarily imply polymers containing only elements other than carbon. However, papers dealing solely with conventional organic polymers would not be appropriate. Although the main emphasis will be on the preparation and reactions of inorganic polymers, it is intended to include also the theoretical and physical aspects, such as thermal stability, and mechanisms and kinetics of condensation.

A programme of interest to ladies accompanying participants will be arranged.

The full programme and forms of application to attend the Symposium will be available in March, 1961, from the General Secretary. The Chemical Society, Burlington House, London, W.1. Those who have already asked for particulars need not apply again.

### **Excerpt from 'Scientific Information Notes'**

National Science Foundation, Washington 25, D.C.

Vol. 2, Number 5, October-November 1960

### **International Groups Plan Improvement of Natural Sciences Documentation**

Representatives of four international organizations met at The Hague, Netherlands, on September 16, 1960, to discuss plans for cooperatively developed programs dedicated to improving communication of information in the natural sciences. The organizations represented were the International Council of Scientific Unions (ICSU), the International Federation for Documentation (FID), the International Standardization Organization (ISO), and the International Federation of Library Associations (IFLA).

In view of the growing complexity and volume of scientific publication, and the consequent increasing difficulty of communicating new knowledge to all those who have a need for it, the *ad hoc* committee recommended that the four organizations should cooperate to develop programs commonly agreed upon, even though the various activities may be executed separately or in concert by the constituent bodies. The group stressed the importance of developing programs in close association with UNESCO in evolving its policy and program for Documentation of the Natural Sciences.

It was unanimously agreed that a Program Coordinating Committee should be established consisting of one senior representative from each of the organizations. In order to prevent unnecessary proliferation of groups in the field, where so many bodies are already partially at work, the *ad hoc* group felt that the new Committee should be regarded as a working party for the program now being evolved by UNESCO. In view of the importance and nature of the proposed activities, the group decided that the director of the Department of Natural Sciences of UNESCO should be invited to be chairman of the coordinating body. Arrangements will be made to establish a secretariat.

General objectives of the committee include:

- (1) Providing continuous consultation between the constituent bodies.
- (2) Developing commonly agreed program objectives.
- (3) Allocating clearly defined responsibilities for the elaboration and execution of study and action in specific program areas.
- (4) Developing unified advice to UNESCO on its policy and program, making common approach for UNESCO support, and equally offering common action in assisting the execution of UNESCO projects.

- (5) Strengthening, by united effort, the influence of the organizations in the relation of each with international or regional specialist organizations, government scientific authorities, national scientific organizations, scientific societies, and scientific journals.

It was proposed that two program areas of critical importance be given immediate attention:

- (1) Improvement of editorial standards for primary publication in the natural sciences.
- (2) Documentary retrieval techniques, including electrical, mechanical, and optical devices as well as related linguistic and coding problems.

It was agreed that ICSU is the organization most clearly concerned with publications and, therefore, it should assume the responsibility for this program with the general support and collaboration of the other bodies. Similarly, retrieval techniques are mainly the concern of FID and it should assume a corresponding responsibility, again with the support and collaboration of the other partners.

### *UNESCO to survey organization of science abstracting services*

The United Nations Economic and Social Council at its July session in Geneva requested that UNESCO conduct a survey on the organization and functioning of scientific and technological abstracting services.

The Council deemed the survey necessary as a basis for possible subsequent action to improve the effectiveness of the dissemination of scientific information at the international level. In its considerations, the Council recognized that in the scientific and technical documentation field many gaps as well as duplication exist.

### *Biological abstracts holds communications symposium*

A symposium on 'Biological Communications—Theory, Structure, Functions, Management' was held October 6-7, 1960, in conjunction with dedication of expanded headquarters facilities of *Biological Abstracts*.

The symposium dealt with the current status of written communications in biology; a philosophic approach to the problems of communication; potential of alternative ways for reporting and recording biological research results; and the current status and needs of biological communications as viewed by practitioners in the fields of molecular, cellular, genetic, developmental, regulatory, and environmental biology.

Expansion of facilities for *Biological Abstracts* at 3815 Walnut Street, Philadelphia 4, Pa., was necessitated by recent increases in the number of abstracts published annually. During 1960, Volume 35 of *Biological Abstracts* will carry about 72,500 items abstracted from more than 4,900 primary sources as compared to 40,000 abstracts published in 1956. It is estimated that the annual total will increase to 87,000 by 1961.

### *NSF promotes better public understanding of science*

During the past year, the National Science Foundation inaugurated an experimental program to develop better lines of communication between the science community and the general public. The program was initiated in recognition of the fact that private and public support for continuing programs of research and development, with special emphasis on basic research, is possible only if there is widespread understanding of the nature of science and its relation to the future progress and security of the Nation.



A principal approach has been the support of conferences, workshops, and seminars at which editors and writers are brought together with scientists to get information about the subject matter of science. Activities of this type have been conducted by a number of academic institutions and professional societies.

In addition, the Foundation has supported other approaches to the problem such as the jointly sponsored effort of the University of Florida and the Southern Regional Education Board to develop methods by which a university can communicate information about its science activities to the public. Support has also been given to projects for expanding the disciplinary coverage of community science study groups and to experiment in conveying science information to the public on a regional basis.

Although funds for the program are limited, the Foundation will consider other applications for the support of activities designed to improve public understanding of science.



#### IV. ACTIVITÉ DE L'UNION PAR L'INTERMÉDIAIRE DES SECTIONS ET COMMISSIONS

##### *Réunion des Présidents de Section*

Les Présidents de Section se sont réunis à Londres (4 de ces Messieurs étant domiciliés dans le Royaume-Uni et occasionnant ainsi peu de frais) le 10 octobre 1960. Au cours de cette réunion, il ne s'agissait pas seulement de résoudre des problèmes de routine, mais surtout de trouver des moyens d'encourager et d'intensifier l'activité de l'Union, particulièrement en vue de la Conférence et du Congrès de 1961.

Le rapport de cette réunion, organisée par M. le Professeur W. KUHN et la Royal Society et présidée par M. le Professeur H. J. EMELEUS, paraîtra dans le prochain bulletin.

##### **Commission on Macromolecules**

##### *Minutes of the Meetings of the Commission on Macromolecules held in Moscow on 15 and 17 June, 1960*

*Present:* H. MARK (USA), W. KERN (Germany), K. VESELY (Czechoslovakia), O. WICHTERLE (Czechoslovakia), V. TSVETNOV (USSR), F. DANUSO (Italy), A. G. NASINI (Italy), E. TURSKA (Poland), H. W. MELVILLE (UK), A. J. STAVERMAN (Holland), K. A. WOLF (Western Germany), P. J. FLORY (USA), W. R. KRIGBAUM (USA), M. L. HUGGINS (USA), G. M. BURNETT (UK), G. DRING (UK, Chairman of Plastics and High Polymer Commission), M. MAGAT (France), V. DESREUX (Belgium), G. SMETS (Belgium), S. MEDVEDEV (USSR), V. KARGIN (USSR), P. DOTY (USA).

*Minutes.*—The minutes of the last meeting, held in Wiesbaden, were approved.

*Nomenclature.*—It was reported that after many years work the German report on high polymer nomenclature has been agreed. It has been published in 'Die makromolekulare Chemie', Volume 38, pages 1–12 (1960), and will also be published in the 'Journal of Polymer Science'. The Russians have agreed to a uniform system of nomenclature which was used in practice at the Symposium in Moscow in 1960. It will no doubt be accepted formally by the Commission at its next meeting, and arrangements for publication will be made. The Japanese report is not yet ready.

These reports do not cover the system of nomenclature for stereoregulated polymers. The outline of such a system has been discussed by the Commission and has been published in the 'Journal of Polymer Science'. Members of the Commission and anyone else interested have been invited to comment on these tentative proposals. A special sub-committee, under Dr. M. L. HUGGINS, is at present examining these comments with a view to producing a report for discussion at the next meeting of the Commission.

*Interchange of High Polymer Standards of Molecular Weight.*—Several hundred grams of polystyrene, of molecular weight of the order of 100 000 and having very narrow molecular weight distribution, have been prepared by two organisations, one in Germany and one in the United States. The previous international experiment in molecular weight standardization was

to some extent hampered by the difficulty of fractionating samples. These new samples are such that fractionization is unnecessary and it is hoped therefore that a much better degree of concordance in the measurement will be achieved. The samples are now being distributed to a number of laboratories which have facilities for their examination. In order that the molecular weights may be measured by osmometry Professor MARK has kindly agreed to take charge of the distribution of the samples and the correlation of the results when they are received.

*Future Meetings.*—The next meeting will be held in Montreal in July, 1961. It was agreed that the next meeting after Montreal should be in 1965. The proposal that it should be held in France was generally acceptable; India was also suggested.

*Membership.*—All members of the Commission should retire in 1961. In order to preserve continuity, a scheme of partial change in membership has been worked out. A proper balance between the large and the small countries has been arrived at. These proposals will be formally put to the meeting in Canada. Attached are the suggestions that have been made for that meeting.

*Liaison with Plastics and High Polymer Division of IUPAC.*—The Chairman of this Division, Mr. G. DRING, attended the meetings in Moscow, so that he can report on the work of the Commission to his Division.

## Macromolecular Commission

### *Proposed Changes in Membership—Titular Members*

H. W. MELVILLE (UK)	continue as Chairman until 1963
P. M. DOTY (USA)	retire as Secretary and replace by P. J. FLORY (USA)
V. DESREUX (Belgium)	to be replaced by O. WICHTERLE (Czechoslovakia)
A. KARGIN (USSR)	retires in 1963
W. KERN (Germany)	retires in 1963
G. NATTA (Italy)	retires in 1961: to be replaced by A. NASINI (Italy)
A. PETERLIN (Yugoslavia)	retires in 1961: to be replaced by H. L. WILLIAMS (Canada)
C. SADRON (France)	retires in 1961: to be replaced by a French polymer scientist
I. SAKURADA (Japan)	retires in 1963
H. SIHTOLA (Finland)	retires in 1961: to be replaced by A. J. STAVERMANN (Holland)

Other nations mentioned for consideration in the near future were Sweden, Austria and India.

## Pesticides Commission

*Change of Officers.*—The Applied Section had informed that from July this year Dr. R. A. E. GALLEY took over the Chairmanship of the Pesticides Division of the Applied Chemistry Section from Dr. HALLER. He is succeeded as Honorary Secretary of that Division by Dr. J. TREBOUX of J. R. GEIGY S.A., Basle 16, Switzerland.

## Commission des Fermentations A (Commission des fusels)

*Compte rendu de la Réunion dans les bureaux de l'Union des Brasseurs suisses, à Zurich, le 26 août 1960*

Etaient présents :

L. GENEVOIS,	Président, Faculté des Sciences, 20, cours Pasteur, Bordeaux, France
B. DREWS,	Institut für Gärungsgewerbe, Seestrasse 12, Berlin N 65, Allemagne
H. SPECHT	Assistant du Professeur DREWS, Berlin
C. TARANTOLA	Istituto di Industrie Agrarie, Via Giuria 15, Torino Italie
BOLESŁAW BACHMAN	Institut Polytechnique, ul. Wolczanska 171-173, Lodz, Pologne
A. L. PRABUCKI	Eidgenössische Technische Hochschule, Institut für Tierernährung, Zurich, Suisse
H. B. PFENNINGER	Versuchsstation Schweizer Brauereien und Institut für landwirtschaftliche Bakteriologie und Gärungsphysiologie der ETH, Zurich, Suisse
HEIKKI SUOMALAINEN	Alko, Itämerenkatu 51, Helsinki, Finlande.

Le Dr RUDOLF MORF assiste à une partie de la séance.

Le Président souhaite la bienvenue aux collègues présents, notamment à ceux qui assistent pour la première fois à la réunion de la Commission, Messieurs BACHMAN et SUOMALAINEN, qui n'ont pas hésité à faire un long voyage pour cette réunion, et Messieurs PRABUCKI et PFENNINGER, qui représentent les jeunes chercheurs suisses. La Commission fait boules de neige, ce dont chacun peut se réjouir, car elle a pour but d'établir des liens personnels entre tous ceux qui travaillent dans le domaine étudié.

Le Président lit les excuses de MM. BELL et GUYMON.

Le Professeur DREWS et le Dr SPECHT exposent que les spectres infrarouges permettent un dosage grossier de l'isobutanol dans les fusels, mais non un dosage des deux pentanols. Ils jugent la chromatographie en phase vapeur beaucoup plus précise; ils préparent une étude des constituants des fusels de la bière.

Le Professeur TARANTOLA résume un mémoire remis à chacun des membres présents: il a étudié les fusels italiens de marc de raisin, de cidre, de jus de figues, de jus de caroubes, de mélasse. Dans le marc de raisin, dans le cidre, il a trouvé méthanol, éthanol, propanol *n*, butanol 2 (particulièrement dans le marc de raisin), isobutanol, méthyl 3, butanol 2, isopentanol, confirmant ainsi les données de BARAUD et GENEVOIS; l'isopropanol toutefois n'était visible dans aucun échantillon, les fusels de figues, mélasses, caroubes sont plus simples; le butanol 2 est absent, ainsi que le méthyl 3 butanol 2 (sauf dans les caroubes pour ce dernier corps).

Le Professeur SUOMALAINEN a étudié les fusels des alcools de liqueurs sulfiteuses de papeterie de Finlande, des alcools de grains (froment, orge), fusels qui contiennent propanol *n*, isobutanol et les deux pentanols (séparés par l'auteur), ces alcools étant en proportions très variables, la fraction propanol pouvant être importante. L'auteur a séparé les composés carbonyliques des fusels par leurs dinitrophénylhydrazones; il a trouvé les aldéhydes correspondant aux alcools connus (y compris l'hexanal), et en outre l'aldéhyde crotonique et le diacétyle.

L'auteur est d'accord avec la notion présentée par MM. GENEVOIS et GUYMON, que les fusels sont des produits de synthèse de la levure.

Monsieur BACHMAN a étudié le rôle du pantothénate de chaux et de l'a-



cide acétique dans la formation des fusels (dosés en bloc par la réaction de Komarovski); dans certaines conditions, l'acide acétique peut tripler la quantité de fusel (rapportée à l'éthanol formé). Il a étudié d'autre part quelques fusels industriels polonais, dont la composition est simple (propanol, isobutanol, pentanols).

Monsieur PRABUCKI a étudié au moyen de l'appareil «Virus» de Bonn la séparation des constituants des fusels, qui est bonne lorsque la phase solide est imprégnée de «Rhéoplex». La difficulté réside dans la séparation des fusels d'une petite quantité de liquide de fermentation.

Monsieur PFENNINGER est d'accord.

Le Président distribue un mémoire de M. GUYMON, où, à l'aide de mutants de levures, il montre que les synthèses de leucine, isoleucine et valine sont liées aux synthèses des alcools correspondants; les alcools auraient pour précurseurs les acides cétoniques à  $n + 1$  atomes de carbone. Il fait circuler les schémas proposés par M. GUYMON.

Le Président distribue un mémoire de M. BARAUD et Mlle LAFON sur l'oxydation des alcools supérieurs: seul le permanganate alcalin à froid permet une oxydation quantitative des alcools en acides correspondants. Ces acides peuvent facilement être dosés, dans leur mélange, par la chromatographie gazeuse. La séparation des fusels et de l'éthanol s'obtient, en milieu aqueux, par une extraction au moyen du pétrole, par un dispositif à contre-courant. Ce dispositif, qui fonctionne déjà qualitativement (approximation de 20%) est en cours de perfectionnement, pour le rendre plus précis.

La séparation quantitative des constituants des fusels sur un faible volume de liqueur est donc un problème virtuellement résolu, qui permettra d'aborder le problème du déterminisme physiologique des constituants des fusels; ce problème est à l'ordre du jour de la prochaine session.

Le Dr BACHMAN demande si l'on ne pourrait pas avoir des fusels «étalons», et aussi des milieux de fermentation standard.

Le Président est d'accord; il enverra à tous ceux qui le demanderont des échantillons de 10 millilitres environ de fusels divers: anhydres, de composition connue par chromatographie gazeuse. Un milieu standard de fermentation pourra être étudié et proposé lors d'une séance ultérieure.

Le Président soumet à la Commission l'invitation de M. SUOMALAINEN, de se réunir l'an prochain à HELSINKI, après le Congrès international de biochimie de Moscou (10-16 août 1961) et ses excursions. Cette proposition est adoptée.

La séance est levée à 12.30

L. GENEVOIS

### Definition of Dried Yeast According to IUPAC Specification

By 'dried yeast' is meant the dried whole organism of one individual yeast or of a mixture of several yeasts belonging to the family Saccharomycetaceae, sub-family Saccharomycetoideae, and to the family Cryptococcaceae, sub-families Cryptococcoideae and Rhodotoruloideae (classification of Lodder and Kreger-van Rij), obtained either as a by-product of fermentation processes or by special culture, and conforming to such standards as may be laid down.

So called 'fat yeasts' (for instance *Cryptococcus terricolus*, *Rhodotorula species*, etc.) containing more than 20% fat are not considered here.

It is desirable that the origin or origins of the yeast should be specified by the manufacturer.

It should not be permitted to sell under the label 'Dried Yeast' yeast



products which have been extracted or in which inert fillers or substances which are not a part of the yeast cells, are added.

With regard to an addition of vitamins and/or amino acids naturally occurring in yeast, it is recommended that the members of Commission B should try to work out analytical methods which would make it possible to differentiate between the above mentioned additions added before fermentation and assimilated by the yeast cells, and those added after fermentation.

As soon as such a method has been established the definition of dried yeast will be supplemented by a paragraph concerning an obligation to declare products added after fermentation.

## **V. XXI<sup>e</sup> CONFÉRENCE ET XVIII<sup>e</sup> CONGRÈS, MONTREAL 1961**

### **XXIst Conference of the International Union of Pure and Applied Chemistry**

The following programme is incomplete and of a purely preliminary nature. The complete programme will be published in the third circular.

The IUPAC Executive Committee will hold meetings on Monday, 31 July, and Tuesday, 1 August.

The IUPAC Bureau will hold its first meeting on Wednesday, 2 August, at 9.00 a.m. and a second meeting (new Bureau) on Saturday, 5 August, at 4.00 p.m.

The IUPAC Council will hold its first meeting on Wednesday, 2 August, at 3.00 p.m., and its second session on Saturday, 5 August, at 9.00 a.m.

The Sections and Commissions will meet on Thursday, 3 August, and Friday, 4 August.

The Section Presidents will meet with their Vice-Presidents or Secretaries.

#### *List of Union Sections and Commissions planning to hold meetings during the XXIst Conference*

The Physical Chemistry Section

Part of the Inorganic Chemistry Section (Nomenclature\*, Atomic Weights, High Temperatures)

The Nomenclature Commission of the Organic Chemistry Section\*

Probably the whole of the Analytical Chemistry Section

The following Divisions of the Applied Chemistry Section:

Division of Pesticides

Division of Plastics and High Polymers

Division of Pulp, Paper and Board

The Commissions of the Biological Chemistry Section will not meet.

All meetings in connection with the XXIst Conference will be held at the Social Centre, University of Montreal.

\* These Commissions will meet separately from the Montreal Conference, probably in Columbus, Ohio.

## XVIIIth Congress of Pure and Applied Chemistry

### *Plenary Lecturers*

Prof. F. S. DANTON, Leeds, England:

'New Horizons in Physical Chemistry'

Prof. R. DAUDEL, Paris, France:

«Quelques récents résultats concernant les relations entre la structure et la réactivité chimique des molécules organiques»

Prof. N. N. SEMENOV, Moscow, USSR:

...

Prof. G. SCHWARZENBACH, Zurich, Switzerland:

'Metastabile Protonierungs- und Deprotonierungsprodukte anorganischer Molekeln und Ionen'

Prof. R. H. WILHELM, Princeton, USA:

...

The following Sectional Lecturers have been invited:

### *Physical Chemistry*

#### *Section A 1: Structure and Reactivity of Small Molecular Species*

Dr. R. S. MULLIKEN, Chicago, USA:

'Some Recent Progress on the Electronic Structure of Molecules'

Dr. H. C. LONGUET-HIGGINS, Cambridge, England:

'The Theoretical Chemistry of Excited Molecules'

Dr. V. L. TAL'ROSE, Moscow, USSR:

'Reactions of Ions and Molecules in the Gas Phase'

Dr. O. OSBERGHAUS, Freiburg, Germany:

'Mass Spectroscopic Investigations on the Unimolecular Decay Products of Neutral and Ionised Hydrocarbons'

Dr. P. GOLDFINGER, Brussels, Belgium:

'Reactions of Halogen Atoms'

Dr. A. S. GORDON, China Lake, Cal., USA:

'Some Reactions of Cyclo-Alkyl Radicals'

#### *Section A 2: Solid State*

Prof. M. MAGAT, Paris, France:

'Reactions of Organic Radicals in the Solid State between 90° and 273 °K'

Dr. S. A. RICE, Chicago, USA:

'Molecular Motion in Solids'

Dr. D. W. J. CRUICKSHANK, Leeds, England:

'The Role 3d Orbitals in  $\pi$ -bonds between Si, P, S or Cl and O or N'

Prof. F. C. TOMPKINS, London, England:

'Imperfections and Chemical Reactivity'

Dr. D. L. DEXTER, New York, USA:

'Excitation Processes in Crystals'

#### *Section A 3: Chemical and Thermodynamic Properties at High Temperatures*

Prof. H. NOWOTNY, Vienna, Austria:

'High Temperature Phase Equilibria'

Dr. F. TROMBE, Pyrénées-Orientales, France:

'Preparation of Pure Substances and Single Crystals at High Temperature'

Prof. J. L. MARGRAVE, Madison, USA:

'Production and Measurement of High Temperatures'

Prof. W. LOCHTE-HOLTGREVEN, Kiel, Germany:

...

Mr. BELA KARLOVITZ, Pittsburgh, USA:

'Flames Augmented by Electric Power'

Prof. P. W. GILLES, Lawrence, Kans., USA:

'Ternary Species at High Temperatures'

Prof. HAAKON FLOOD, Trondheim, Norway:

'Thermodynamics and Structure of Molten Salts'

Dr. D. R. LOVEJOY, Ottawa, Canada:

'The Temperature Scale Above 1000°'

#### *Section A 4: Nucelar Chemistry*

Dr. G. FRIEDLANDER, New York, USA:

'Review of High Energy Nuclear Reactions'

Dr. G. N. FLEROV, Moscow, USSR:

'Heavy Ion Nuclear Reactions'

#### *Applied Chemistry*

#### *Section B 1: Structure and Catalytic Activity of Metal Surfaces*

Dr. D. W. PASHLEY, Cambridge, England

...

Prof. Dr. G.-M. SCHWAB, Munich, Germany

...

Dr. R. GOMER, Chicago, USA:

...

#### *Section B 2: Metallurgical Processes*

Dr. W. MARTIN FASSELL, Jr., Newport Beach, Cal., USA:

...

Prof. A. E. VAN ARKEL, Leiden, Holland:

...

Prof. F. D. RICHARDSON, London, England

...

#### *Section B 3: Electrochemistry*

Prof. PAUL DELAHAYE, Bâton Rouge, USA:

...

#### *Section B 4: Plastics and High Polymers*

Dr. R. F. BOYER, Michigan, USA:

...

Dr. W. REDDISH, England:

'Chemical Structure and Electrical Properties of High Polymers'

Dr. S. G. MASON, Montreal, Canada:

'Some Phenomena in the Rheology of Emulsions and Suspensions'

Dr. H. A. STUART, Mainz, Germany:

'Crystallization Phenomena in High Polymers'

#### *Section B 5: Wood Chemistry Symposium*

Dr. T. ENKVIST, Helsinki, Finland:

'New Aspects on Lignin Reactions in Kraft Pulping'

Prof. K. FREUDENBERG, Heidelberg, Germany:

'Biogenesis and Constitution of Lignin'

Dr. D. A. I. GORING, Montreal, Canada:

'The Physical Chemistry of Lignins'

- Dr. J. K. HAMILTON, Shelton, Wash., USA:  
 'The Behaviour of Wood Carbohydrates in Technical Pulping Processes'  
 Prof. E. L. HURST, Edinburgh, Scotland:  
 'The Chemical Structure of the Hemicelluloses'  
 Dr. B. LINDBERG, Sweden:  
 'Recent Advances in Methods of Isolating and Purifying Hemicelluloses'  
 Dr. H. MEIER, Stockholm, Sweden:  
 'Chemical and Morphological Aspects of the Fine Structure of Wood'  
 Prof. A. H. NISSAN, New York, USA:  
 'Cellulose as a Visco-elastic Polymer'  
 Prof. K. SARKANEN, New York, USA:  
 'Fundamental Chemistry of Pulp Bleaching'  
 Dr. K. WARD, Appleton, Wis., USA:  
 'Fractional Extraction of Spruce Hemicellulose and Properties of the Fractions'  
 Prof. H. G. H. ERDTMAN, Stockholm, Sweden:  
 'Phenolic Compounds, other than Lignin, in Woods'  
 Prof. J. J. HERMANS, New York, USA:  
 'Chemical Mechanism in the Grafting of Cellulose'  
 Prof. J. K. N. JONES, Kingston, Canada:  
 'Biosynthesis of Wood Carbohydrates'  
 Dr. R. H. MARCHESSAULT, Marcus Hook, Pa., USA:  
 'The Infra-red Absorption and the Nuclear Magnetic Resonance of Cellulose and its Derivatives'  
 Dr. H. J. MARRINAN, Manchester, England:  
 'Modern Techniques for Estimating the Crystallinity of Cellulose'  
 Dr. L. G. STOCKMAN, Stockholm, Sweden:  
 'Recent Developments and Present Trends in Sulphite Pulping'

### *Analytical Chemistry*

#### *Section C 1: Analysis of Metals and Minerals*

- Dr. H. A. SLOMAN, Teddington, England:  
 'The Determination of Gases in Metals'  
 Dr. V. A. FASSELL, Ames, Iowa, USA:  
 'The Determination of Trace Elements in Metals and Minerals'  
 Dr. L. B. GINZBURG, USSR:

...

#### *Section C 2: Analytical Chemistry of the Less Common Metals*

- Prof. A. K. MAJUMBAR, Calcutta, India:  
 ...  
 Prof. M. BOBTELSKY, Jerusalem, Israel:  
 'The Contribution of Heterometry to the Analytical Chemistry of the Less Common Metals'  
 Dr. K. L. CHENG, Princeton, USA:

...

#### *Section C 3: Analysis of Pesticide Residues*

- Dr. S. DORMAL, Gembloux, Belgium:  
 'Comparative Methods of Residue Analysis'  
 Dr. W. M. HOSKINS, Berkeley, Cal., USA:  
 'Statistical Approach to Assessment of Pesticide Residue Data'  
 F. P. W. WINTERINGHAM, Slough, England:  
 'Tracer Techniques for the Determination of Degradation and Metabolism of Pesticides'



## *Organic Chemistry Symposium*

### *Section D 1: Dynamic Stereochemistry*

Prof. S. J. ANGYAL, New South Wales, Australia:

'Quantitative Conformational Analysis in Carbohydrate Chemistry'

Prof. D. H. R. BARTON, London, England:

'New Photochemical Reactions and their Stereochemical Specificity'

Prof. G. STORK, New York, USA:

'Stereochemical Control in Total Synthesis'

Prof. E. J. COREY, Cambridge, USA:

'Recent Advances in Stereochemistry of Organic Structures'

Prof. G. OURISSON, Strasbourg, France:

'Quelques aspects nouveaux de l'analyse conformationnelle'

Dr. S. WINSTEIN, Los Angeles, Cal.:

'Stereochemical Aspects of Homoconjugation and Anchimeric Effects'

Prof. O. JEGER, Zurich, Switzerland:

'Stereochemical Aspects of Some Novel Substitution and Rearrangement Reactions'

Prof. R. V. LEMIEUX, Ottawa, Canada

### *Other Conferences and Symposia*

Here will follow paragraphs dealing with

- (i) International Symposium on Microchemical Techniques, Pennsylvania State University, 13-18 August 1961
- (ii) International Calorimetry Conference, Ottawa, Canada, 14-17 August 1961
- (iii) International Symposium on Macromolecular Chemistry, Montreal, 27 July-1 August 1961

### *Scientific Papers*

[Draft not yet available—to be drawn up after the meeting of the Program Committee on 7 October, 1961. Authors will be asked to submit papers to their National Committees by not later than 1 February, 61; National Committees will be required to review papers and submit them to Congress Secretariat by not later than 1 March, 61. Instructions will, probably, include names and addresses of National Committees—especially those that have agreed to review papers (about 20).]

### *Technical Visits*

A number of Technical Visits are being organized to take place during the week of the Congress. Arrangements have not yet been completed, but the tentative list of industrial and other establishments to be visited includes the following:

Industrial Cellulose Research Ltd., Hawkesbury, Ontario

Pulp and Paper Research Institute, Montreal, P.Q.

Canadian Industries Limited, McMasterville, near Montreal

Shell Oil Company, Montreal

B.A. Shawinigan Ltd., Montreal

Laurentide Sulphur Ltd., Montreal

Complete details of visits to these and other establishments will be included in the Third Circular.

Delegates who would wish to visit laboratories of the National Research Council and other scientific institutions in the Ottawa area should consult the brochure prepared by Thos. Cook & Son.

### *Post Congress Tours*

The official travel agents, Thos. Cook & Son, have arranged a number of interesting tours of various parts of Canada, and complete details are contained in the brochure enclosed with a circular. So far as is possible, these tours have been designed to combine sightseeing, cultural and scientific interests.

It should be noted that registration for these tours should be made direct with Thos. Cook & Son, and not with the Congress Secretariat. It should also be noted that in countries where these travel agents have official representatives, payment for the tours can be made in local currency.

### *Ladies Program*

There will be a ladies' lounge at the Queen Elizabeth Hotel open every day, with continental breakfast served each morning. This will be a general meeting place, where the ladies can drop in any time informally. If there are any language difficulties, interpreters will be available in the lounge. There is so much to see and do in cosmopolitan Montreal where the French and English cultures have mingled so successfully. A program to cover as much of this as possible is being planned, and complete details will be included in the Third Circular.

### *Accommodation*

*Hotels.*—Delegates who would prefer accommodation in a Hotel should complete Form A enclosed with the circular and airmail it to the Montreal Tourist and Convention Bureau, 2055 Peel St., Montreal, Canada, with the least possible delay. As the Congress will be held at the height of the Montreal Tourist season, it is essential that reservations be made well in advance. It must be noted that the Montreal Tourist and Convention Bureau *will not be able to accept applications after 30 June 1961*, and delegates whose applications are received after this date may find it impossible to obtain suitable accommodation.

*University Residences.*—Accommodation for a few hundred delegates is available in the residences of McGill University and the University of Montreal, at a cost of approximately \$5.00 per person per day, including breakfast. As there are no facilities for married couples or children, this accommodation is restricted to delegates who will not be accompanied by members of their families. Delegates who would prefer this type of accommodation should complete Form B enclosed with the circular and airmail it to the Secretary, Central Committee, XVIIIth International Congress of Pure and Applied Chemistry, National Research Council, Ottawa, Canada, by not later than 30 June 1961.

*Motels and Tourist Homes.*—Delegates who would prefer accommodation in a Motel, Private Hotel or Tourist Home will have to make their own arrangements and in this connection the official Travel Agents, Thos. Cook & Son, may be of assistance. A list of recommended Motels, Private Hotels and Tourist Homes in the Montreal area is printed on the reverse side of the map of Montreal enclosed with the circular.

### *Entertainment*

The following social events have been tentatively arranged:

Sunday, 6 August, 1961

Reception, Queen Elizabeth Hotel

Tuesday, 8 August, 1961

Montreal Symphony Concert

Thursday, 10 August, 1961

Congress Dinner, Queen Elizabeth Hotel

Friday, 11 August, 1961

Folk Dancing Display

Complete details of these and other social events will be included in the Third Circular.

### *Applications*

Delegates will be required to submit their final applications immediately after the receipt of the Third and final Circular which will be distributed in March 1961. In the meantime, persons who plan to attend the Congress should complete the Information Card enclosed with the Circular and mail it with the least possible delay. The completion of this Information Card will not obligate anyone to attend the Congress: It will, however, assist the Organizing Committee in planning for the Congress and will also ensure that a copy of the Third Circular is sent to all persons who completed the card.

Persons who completed the Card enclosed with the First Circular need not complete the one enclosed with the Second Circular.

### *Invitations*

Delegates who desire a personal invitation should write to: Chairman, Central Committee, XVIIIth International Congress of Pure and Applied Chemistry, National Research Council, Ottawa, Canada.

### *Third Circular*

The Third and final Circular will be distributed in March 1961. It will contain complete details of the scientific program, of the tours and excursions to take place during the Congress, of the social events, the Ladies Program, etc. It will also contain the following:

- a registration form to notify binding consent to attend the Congress;
- an application form for the social events and excursions taking place during the Congress.

### *Official Address*

All correspondence concerning the Congress should be addressed to:

Chairman, Central Committee  
XVIIIth International Congress of Pure and Applied Chemistry,  
National Research Council,  
Ottawa, Canada.

All correspondence concerning the Conference should be addressed to:

Dr. R. MORF  
c/o F. Hoffmann-La Roche & Co., Ltd., Basle 2,  
Switzerland



## International Calorimetry Conference

An International Calorimetry Conference will be held in Ottawa, Canada, on August 14–17, 1961, immediately following the IUPAC Conference and Congress in Montreal. The host organization will be the National Research Council of Canada. The joint sponsors are the Calorimetry Conference and the Subcommission on Experimental Thermochemistry of the Commission on Chemical Thermodynamics of IUPAC. The meeting will follow the informal pattern set by fifteen previous Annual Calorimetry Conferences. There will be no overlap of subject matter with the August 7–11 Montreal Symposium on Chemical and Thermodynamic Properties at High Temperatures. The program will include selected topics in thermochemistry and the calorimetry of non-reacting systems. These topics, and information about the submittal of papers, will be announced later.

Inquiries should be directed to the Program Chairman:—

Dr. J. E. KUNZLER  
Bell Telephone Laboratories, Inc.  
Murray Hill, New Jersey  
USA

### Commission on Thermodynamics Commission on High Temperatures

The Subcommissions on Experimental Thermodynamics, on the Gaseous State and on Condensed States of the above Commissions are organizing a *Symposium on Chemical and Thermodynamic Properties at high Temperatures*, to be held in conjunction with the *IUPAC Congress* in Montreal, Canada, 6–12 August, 1961.

The topics to be discussed are as follows, and will emphasize experimental techniques without excluding theoretical studies:

7 August, a.m. and p.m.; 8 August, p.m.

(1) Condensed States: (a) High Temperature Phase Equilibria—particularly in systems requiring atmospheric control to obtain stoichiometric compounds.—(b) High Temperature Preparation of Pure Substances of Controlled Stoichiometry—either single—or polycrystalline substances.—(c) Production and Measurement of High Temperatures, with reference to condensed phases under experimental conditions.

8 August, a.m.; 9 August, p.m.; 10 August, p.m.

(2) Gas State: (a) Kinetics of Thermal and Radiated Reactions in Gases and Plasmas (with emphasis on shock tube techniques).—(b) Fundamental Studies of Flames and Plasmas Applied to Chemical and Metallurgical Processes.

10 August, a.m.; 11 August, a.m. and p.m.

(3) Thermodynamic Properties: (a) Vapor Pressure Data and the Properties of Vapors. (Emphasis will be on ternary gaseous compounds, i.e., containing three different atoms).—(b) Thermodynamics of Fused Salts. (Emphasis will be on metal-fused salt systems.)

The program will consist of invited lectures and short, contributed papers. Contributed papers will be presented in summary form only and with the aim of engendering lively discussion. For this reason, two types of abstracts will be required. Short (not more than 250 word) abstracts will be published in a book pertaining to the whole Congress. Long (1000 word) abstracts will be mailed in advance to all attendees of the High Temperature Symposium. Abstracts should be in English, if possible, but other languages will be acceptable.



The deadline for the receipt of these abstracts is 1 February, 1961. Two copies of *each* Abstract should be submitted through the IUPAC National Committee of the *author's country*. Authors of accepted papers will be notified as soon as possible after submission.

Papers from the *USA only* should be submitted to:

Dr. H. E. CARTER  
Chairman, U.S. National Committee for IUPAC  
Division of Chemistry and Chemical Technology  
National Research Council  
2101 Constitution Ave.  
Washington 25, DC

## VI. XXII<sup>e</sup> CONFÉRENCE ET XIX<sup>e</sup> CONGRÈS 1963

Monsieur l'Académicien A. N. NESMEIANOV  
Président de l'Académie des Sciences de l'URSS  
14 B. Kaluzskaya  
Moscou

4375

Bâle, le 9 septembre 1960

*Objet:* XXII<sup>e</sup> Conférence et XIX<sup>e</sup> Congrès de l'IUPAC, 1963

Monsieur le Président,

Sans vouloir être importun, j'ai le devoir de vous rappeler ma lettre N° 3989 du 16 juin 1960 dans laquelle j'ai souligné la nécessité et l'urgence d'une décision concernant le lieu et la date de la XXII<sup>e</sup> Conférence et du XIX<sup>e</sup> Congrès qui se tiendront en 1963.

Je vous ai fait remarquer que l'Académie des Sciences de l'URSS, au cas où ces manifestations auraient lieu à Moscou en 1963, devrait être en mesure de commencer les préparatifs dès le mois d'octobre de cette année.

J'ai également attiré votre attention sur les conséquences financières très sérieuses qui résulteront des frais de voyage des congressistes et des membres de la Conférence à Moscou.

D'autre part, dans le cas où vous préféreriez remettre votre invitation à une date ultérieure, c'est le pays membre qui se chargera de l'organisation en 1963 qui devrait savoir aussitôt que possible à quoi s'en tenir.

Le Comité exécutif, comme vous le savez, tiendra une réunion au milieu d'octobre à Madrid et il sera nécessaire de lui communiquer tous les détails de notre activité en 1963 afin que ce Comité puisse soumettre une proposition définitive à ce sujet au Conseil qui se réunira l'an prochain à Montreal.

En vous remerciant d'avance de bien vouloir nous fixer sans tarder sur votre décision, je vous prie de croire, Monsieur le Président, en l'assurance de mes sentiments les meilleurs.

RUDOLF MORF

CC. Comité exécutif

M. le Dr. R. MORF  
Secrétaire général de  
l'Union internationale de Chimie pure et appliquée  
c/o F. Hoffmann-La Roche & Cie., S.A.  
Bâle 2, Suisse

Moscou, le 14 septembre 1960

Cher Monsieur Morf,

A cause de mes vacances, je n'ai pas pu, malheureusement, répondre immédiatement à votre aimable lettre, datée du 16 juin 1960.

L'Académie des Sciences de l'URSS a vivement apprécié l'idée de convoquer un des Congrès de l'IUPAC en URSS et c'est avec grande joie que nous y avons donné suite, en vous invitant à organiser le XIX<sup>e</sup> Congrès international et la XXII<sup>e</sup> Conférence de l'IUPAC à Moscou en 1963.

Mais il est bien clair que c'est le Comité exécutif et le Conseil de l'IUPAC qui auront à prendre la décision définitive. Si, en face de la situation financière, Londres est choisi comme lieu le plus convenable pour les travaux du Congrès et de la Conférence, nous aimerons mieux laisser la priorité à nos collègues britanniques en conservant toujours notre invitation pour le Congrès suivant de 1965.

Veuillez agréer, Monsieur MORF, l'assurance de mes sentiments les meilleurs.

Président de l'Académie  
des Sciences de l'URSS  
A. N. NESMEIANOV

M. l'Académicien A. N. NESMEIANOV  
Moscou.

Le 29 septembre 1960

Monsieur le Président et bien cher Collègue,

Je vous remercie vivement de votre aimable lettre du 14 septembre. Comme vous le savez, le Comité exécutif devra, le 15 octobre, prendre une décision en ce qui concerne le programme des années à venir.

Malheureusement, l'Académicien KASANSKI sera empêché, pour raison de santé, de siéger avec nous. Il est dommage que nous ne puissions pas bénéficier des ses conseils.

C'est pour cette raison que je vous serais très reconnaissant de bien vouloir, à titre personnel, me faire connaître votre point de vue sur les deux questions :

- a) la proposition de l'Académie des Sciences, concernant le lieu et la date de la XXII<sup>e</sup> Conférence en 1963
- b) votre proposition concernant les cotisations de l'URSS pour les années à partir de 1961.

Je répète une fois encore combien je suis désolé que notre collègue, M. B. A. KASANSKI, ne puisse pas assister à notre réunion, et je vous remercie d'avance de l'aide que vous voudrez bien m'apporter en me donnant les indications demandées.

Veuillez croire, Monsieur le Président et bien cher Collègue, à mes sentiments les meilleurs.

RUDOLF MORF

*Télégramme*

4149/13 Moscou 1183 53 13 1853 – Via Transradio – L'Académie des Sciences de l'URSS est d'avis que la XXII<sup>e</sup> Conférence doit précéder le XIX<sup>e</sup> Congrès et avoir le même lieu Stop Les cotisations de l'URSS pour les années suivantes seront indiquées dans un proche avenir Stop Président de l'Académie des Sciences de l'URSS NESMEIANOV ».

## VII. CALENDRIER

1961

### *February*

- |      |   |                  |
|------|---|------------------|
| 6-17 | Practical Course in Radiochemistry<br>Kernreaktor-Bau- und Betriebsgesellschaft mbH,<br>Weberstr. 5, Karlsruhe/Germany) | Karlsruhe        |
| 6-17 | Course in Basic Radiological Health<br>(ROBERT A. TAFT, 4676 Columbia Parkway, Cin-<br>cinnati 26, Ohio/USA)            | Las Vegas<br>USA |

### *March*

- |       |   |               |
|-------|---|---------------|
| 21-30 | 139th Meeting of the American Chemical Society<br>(ACS, 1155 Sixteenth Str. N.W., Washington 6<br>DC/USA) | St. Louis USA |
|-------|---|---------------|

### *April*

- |       |   |               |
|-------|---|---------------|
| 10-15 | 1st International Congress on Metallic Corrosion<br>(Col. F. J. GRIFFIN, Society of Chemical Industry,<br>14 Belgrave Square, London S.W. 1/UK) | London        |
| 11-14 | The Chemical Society Anniversary Meetings<br>(Chemical Society, Burlington House, London<br>W.1/UK)   | Liverpool     |
| 18-20 | Symposium on Chemical Reactions in the Lower<br>and Upper Atmosphere (R. D. CADLE, Stanford<br>Research Institute, Menlo Park, Cal./USA)        | San Francisco |
| 24-29 | 12th meeting of CITCE (Dr. M. POURBAIX, c/o<br>Cebelcor, 24, rue des Chevaliers, Brussels/Belgium)  | Brussels      |

### *May*

- |       |   |           |
|-------|---|-----------|
| ?     | Symposium on the Detection and Use of Tritium<br>in the Physical and Biological Sciences (Interna-<br>tional Atomic Energy Agency, Kärtnerring 11,<br>Vienna 1/Austria) | undecided |
| 7     | 13th International Symposium on Crop Protec-<br>tion (Prof. J. VAN DEN BRANDE, Institut agrono-<br>mique de l'Etat, Coupure gauche 233, Ghent/Bel-<br>gium)             | Ghent     |
| 29-31 | 44th Annual Meeting of the Chemical Society of<br>Canada (The Chemical Institute of Canada, 18<br>Rideau Street, Ottawa/Canada)   | Ottawa    |

### *May-June*

- |       |   |           |
|-------|---|-----------|
| 29- 2 | Vth European Conference on Molecular Spectro-<br>scopy (Prof. J. A. A. KETELAAR, Vondelstraat 17,<br>Amsterdam W/Netherlands) | Amsterdam |
|-------|---|-----------|

### *June*

- |      |  |              |
|------|--|--------------|
| 5-10 | IXe Colloquium Spectroscopium Internationale<br>(Groupement pour l'Avancement des Méthodes<br>spectrographiques L. N. E., 1, rue Gaston Bois-<br>sier, Paris-15e/France) | Lyon         |
| 9-17 | 13th Exhibition Congress of Chemical Engineering<br>- Achema 61 - (Dr BRETSCHNEIDER, Dechema-<br>Haus, Rheingau-Allee 25, Frankfurt/M./Germany)                          | Frankfurt/M. |

## June

- 13-17 8th Annual Meeting of the Society of Nuclear Medicine (S. N. TURIEL, 430 North Michigan Ave., Chicago 11, Ill./USA) Pittsburgh

## July

- 3- 7 3rd International Congress of Dietetics (British Dietetic Association, 251 Brompton Road, London S.W. 3/UK) London
- 10-14 4th Congress of the International Diabetes Federation (Dr. B. RILLIER, Polyclinique de Médecine, 24, rue Micheli du Crest, Geneva/Switzerland) Geneva
- 18-21 International Symposium on Inorganic Polymers (Chemical Society, Burlington House, London W.1/UK) Nottingham
- 26-30 XI<sup>e</sup> réunion annuelle Société chimie physique - L'acide désoxyribonucléique (ADN), structure, synthèse et fonction - (Prof. G. EMSCHWILLER, 10, rue Vauquelin, Paris-5<sup>e</sup>/France) Col de Voza/Chamonix

## July-August

- 27- 1 International Symposium on Macromolecular Chemistry (Dr. H. L. WILLIAMS, Polymer Corporation Ltd. Sarnia, Ont./Canada) Montreal

## August

- 2- 5 XXIst Conference of IUPAC (Dr. R. MORF, c/o F. Hoffmann-La Roche & Co. Ltd, Basle 2) Montreal
- 3-10 International Congress on Pharmacology (Prof. B. UVNÄS, Pharmacology Institute, Karolinska Mediko-Kirurgiska Institutet, Solnavägen 1, Stockholm) Stockholm
- 6-12 XVIIIth International Congress of Pure and Applied Chemistry (Chairman, Central Committee, XVIIIth International Congress of Pure and Applied Chemistry, National Research Council, Ottawa/Canada) Montreal
- 7-11 Symposium on Chemical and Thermodynamic Properties at High Temperatures (R. F. WALKER, High Temperature Reactions Group, National Bureau of Standards, Washington 25 DC/USA) Montreal
- ? 5th International Congress on Pesticides Canada
- ? Symposium on the Chemistry of Wood Canada
- 10-16 4th General Assembly IUB—5th International Congress of Biochemistry (Prof. R. H. S. THOMPSON, Department of Chemical Pathology, Guy's Hospital Medical School, London S.E.1/UK) Moscow
- 13-18 Symposium on Microtechniques (Dr. H. FRANCIS Jr., Pennsalt Chemicals Co., P.O. Box 4388, Philadelphia 18, Pa./USA) University Park Pa.
- 14-17 International Calorimetry Conference (Dr J. E. KUNZLER, Bell Telephone Laboratories, Inc., Murray Hill, N.J./USA) Ottawa



*August–September*

- 27–1    6th International Conference on Co-ordination Chemistry (Dr. S. KIRSCHNER, Department of Chemistry, Wayne State University, Detroit 2, Mich./USA)    Detroit

*September*

- 18–23    Hauptversammlung der Gesellschaft Deutscher Chemiker (Haus der Chemie, Karlstr. 21, Frankfurt/M./Germany)    Aachen

*1961*

*Undecided*

- Symposium on Redox Processes    India  
(Dr S. PRAKASH, Department of Chemistry, University of Allahabad/India)  
Conference on Radioisotopes in the Biological Sciences (International Atomic Energy Agency, Kärtnerring 11, Vienna 1/Austria)    ?  
Symposium on the Use of Radioisotopes in Microneurophysiology (Dr R. MORF, c/o F. Hoffmann-La Roche & Co Ltd., Basle 2/Switzerland)    Cambridge ?

*1962*

*May*

- 2    14th International Symposium on Crop Protection (Prof. J. VAN DEN BRANDE, Institut agronomique de l'Etat, Coupure Gauche 233, Ghent/Belgium)    Ghent

*June*

- 25–29    International Conference on Co-ordination Chemistry (Prof. L. G. SILLÉN, Royal Institute of Technology, Kemistvägen 37, Stockholm 70/Sweden)    Stockholm

*June*

- 75th Anniversary of the Société chimique de Belgique—Symposium on Organic Chemistry (Comité national de Chimie, Palais des Académies, Bruxelles/Belgium)    Bruxelles

*August*

- 26–29    Symposium on the Chemistry of Natural Products (Prof. F. ŠORM, Institute of Chemistry, Czechoslovakian Academy of Sciences, Na evčicisti 2, Prague 6/Czechoslovakia)    Prague

*September*

- 17–19    International Symposium on Pharmaceutical Products (Prof. A. SOLDI, Società Italiana di Scienze Farmaceutiche, Via Giorgio Jan 18, Milan/Italy)    Florence

## VIII. BIBLIOGRAPHIE

Pour la bibliographie, prière de se référer à celle du Bulletin d'Information paru en novembre.

## IX. NOTE DU RÉDACTEUR

Nous avons le plaisir de vous informer que le Président de l'IUPAC, le Professeur W. ALBERT NOYES, Jr., a été nommé membre d'honneur de la «Real Sociedad Española de Física y Química» de Madrid.

Le Grand prix scientifique de la Ville de Paris vient d'être décerné à Mlle M. PEREY, professeur à l'Université de Strasbourg et membre de notre Commission mixte de Radioactivité appliquée.

Mon ami, le Dr A. WETTSTEIN, membre du Comité de Direction de la Société anonyme Ciba, Bâle, vient de recevoir de la part du Conseil Fédéral le prix Marcel Benoit pour ses travaux scientifiques et les résultats extraordinaires de ses recherches, surtout dans le domaine des stéroïdes.

Le Secrétaire général est heureux de présenter ici, au nom de l'Union internationale de Chimie pure et appliquée, ses vives et sincères félicitations à M. le Professeur NOYES, à Mlle M. PEREY et au Dr A. WETTSTEIN.

De Prague, nous est parvenue la triste nouvelle du décès, survenu le 18 octobre 1960, de M. l'Académicien RUDOLF LUKES, Chef de la délégation tchécoslovaque à la XX<sup>e</sup> Conférence à Munich en 1959.

## BUDGET 1961

At the recent meeting of the Executive Committee in Madrid, careful consideration was given to the budget of the Union. It was agreed that a tentative figure for 1961 of 115000 dollars should be expended, and it was the Executive Committee's final opinion that this was the extreme upper limit of expenditure. This figure was arrived at after careful consideration of the various sections' proposed expenses and it was left to the Honorary Treasurer and the Secretary General to try to fit in this figure in relation to the income of the Union.

If full travel and subsistence allowance is paid to all Titular members the total expenditure for the Conference year 1961 would amount to 211 404 dollars. This figure is of course completely outside the range of the finances of the Union even under the most favourable conditions. The Honorary Treasurer and the Secretary General are faced with a very difficult problem and the following account of how they propose to deal with it is provided so that all members of the Union may appreciate the difficulties under which they are labouring:—

(1) Income. In 1961 the only certain money that will be available is 40 000 dollars. However, in 1960 voluntary contributions were made over and above the standard ones by Germany and Great Britain, and to these must be added the individual contributions from chemists in the United States. If, in 1961, the same good fortune were to hold, this might increase the income by another 35 000 dollars making 75 000 dollars in all. It is, however, obvious that even under the most favourable circumstances it will be necessary to find another 40 000 dollars. The Honorary Treasurer and the Secretary General have explored every possible method of raising the extra money and the following are their suggestions:

(i) The adoption of group travel. The Secretary General has found that for parties of 125, that is to say a Boeing aircraft full, the fares would be reduced to 60% of the economy rate. If this could be adopted, and 3 aircraft filled with IUPAC passengers, it would solve the problem by saving a sum in the region of 40 000 dollars.

(ii) Adoption of the suggestion of the Finance Committee under the Chairmanship of Professor TISELIUS, that voluntary contributions from other sources perhaps commercial, be explored to the full.

(iii) As a last resort the obtaining of funds by the realization of some of the Union's assets. Both the Honorary Treasurer and the Secretary General are loath to take this action except as a very last resort and it is felt that under no circumstances should more than 40 000 dollars be provided in this manner and then only as a temporary measure.

(2) Expenditure. The Honorary Treasurer and the Secretary General herewith submit four tentative budgets; the first being a full budget with the largest figure of 211 404 dollars based on full attendance and full travel and subsistence allowance for all Titular members. As we have already said, this is quite beyond the range of the capacity of the Union even under the most favourable circumstances.

The second figure is for 140 039 dollars and is arrived at by assuming that there is a 400 dollar ceiling for travel and 150 dollars for subsistence.

If the most favourable circumstances occurred, as already reviewed and assuming that only 80% attended, then this figure would be reduced to 120 000 dollars and would come within the region of the figure suggested in Madrid, namely 115 000 dollars.

The other two budgets are self-explanatory and might be forced upon us if the favourable circumstances assumed in the above did not materialize in 1961.

### Revenu de l'IUPAC

	1960	1961*
	\$	\$
Argentine . . . . .	450	450
Australie . . . . .	800	800
Autriche . . . . .	450	450
Belgique . . . . .	800	1 300
Brésil . . . . .	800	800
Bulgarie . . . . .	450	450
Canada . . . . .	1 300	2 600
Chine . . . . .	800	800
Colombie . . . . .	450	450
Tchécoslovaquie . . . . .	800	800
Danemark . . . . .	800	1 600
Finlande . . . . .	450	450
France . . . . .	1 300	2 600
Allemagne . . . . .	5 000	5 000
Grande-Bretagne . . . . .	2 600	2 600
Hongrie . . . . .	450	450
Inde . . . . .	450	450
Irlande . . . . .	100	100
Israël . . . . .	800	800
Italie . . . . .	1 300	1 300
Japon . . . . .	1 300	1 300
Luxembourg . . . . .	100	100
Hollande . . . . .	800	800
Norvège . . . . .	800	800
Pologne . . . . .	800	800
Portugal . . . . .	450	450
Roumanie . . . . .	450	450
Espagne . . . . .	800	800
Suède . . . . .	1 300	2 600
Suisse . . . . .	1 300	2 600
Afrique du Sud . . . . .	800	800
Turquie . . . . .	450	450
République arabe unie . . . . .	450	450
USA . . . . .	3 800	?
URSS . . . . .	1 300	2 600
Yougoslavie . . . . .	450	450
	<hr/> 35 700	<hr/> 39 700
Subvention de l'ICSU . . . . .	11 000	14 000
Intérêts sur les investissements (cette somme sera vraisemblablement réduite de moitié si nous devons réaliser une partie de nos investissements)	5 000	2 500
	<hr/> 51 700	<hr/> 56 200

\*Selon les réponses des pays membres confirmées officiellement au 21 novembre 1960.



## Dépenses de l'IUPAC

Dépenses prévues pour 1961 au cas où tout le monde se réunirait à Montréal, mais auxquelles – comme souligné dans la déclaration du Trésorier et du Secrétaire général – il est impossible de faire face

	<i>Voyage 100% et subsistance à tout le monde</i>
	\$                      \$
<i>Section de Chimie physique</i>	
Comité de Section . . . . .	5 562
<i>Commissions:</i>	
Symboles et Terminologie physico-chimiques . . .	5 509
Thermodynamique chimique . . . . .	9 221
Electrochimie . . . . .	3 467
Chimie macromoléculaire . . . . .	7 427
Données et Etalons physico-chimiques . . . . .	2 773
Structure moléculaire et Spectroscopie . . . . .	3 905
Bulletin «Chemical Thermodynamics» . . . . .	250
<i>Symposia:</i>	
Chimie macromoléculaire/Plastiques . . . . .	2 000
<i>Frais administratifs:</i> . . . . .	220
Total . . . . .	40 334
 <i>Section de Chimie minérale</i>	
Comité de Section . . . . .	5 497
<i>Commissions:</i>	
Poids atomiques . . . . .	3 024
Nomenclature . . . . .	6 417
Hautes Températures. . . . .	4 431
Géochimie . . . . .	7 255
<i>Symposia:</i>	
Hautes Températures. . . . .	2 000
<i>Frais administratifs:</i> . . . . .	600
Total . . . . .	29 224
 <i>Section de Chimie organique</i>	
Comité de Section . . . . .	5 161
<i>Commissions:</i>	
Nomenclature . . . . .	4 998
Codification, Chiffrage et Triage des Combinaisons organiques . . . . .	924
<i>Symposia:</i>	
Chimie de Coordination – Detroit . . . . .	2 000
<i>Frais administratifs:</i>	
Total . . . . .	13 083

<i>Section de Chimie biologique</i>	\$	\$
Comité de Section* . . . . .	3 150	
<i>Commissions:</i>		
Nomenclature . . . . .	2 468	
Etalons de Protéines . . . . .	2 334	
Chimie clinique . . . . .	1 020	
*Seuls, les Président, Vice-Président et Secrétaire de la Section se réuniront à Montreal, tous les autres membres titulaires se rencontrant à Bruges (Belgique)		
<i>Symposia:</i>		
<i>Frais administratifs:</i> . . . . .	500	
Total . . . . .	9 472	

*Section de Chimie analytique*

Comité de Section . . . . .	6 998	
<i>Commissions:</i>		
Réactions analytiques . . . . .	5 575	
Technique microchimiques . . . . .	5 403	
Nomenclature . . . . .	2 368	
Données optiques . . . . .	4 512	
Données électrochimiques . . . . .	4 584	
Données d'Equilibre . . . . .	3 116	
<i>Symposia:</i>		
Techniques microchimiques . . . . .	2 000	
<i>Frais administratifs:</i> . . . . .	1 500	
Total . . . . .	36 056	

*Section de Chimie appliquée*

Comité de Section* . . . . .	5 491	
<i>Divisions:</i>		
Bromatologie** . . . . .	1 932	
Eaux d'Egout et Eaux industrielles résiduaire** . . . . .	1 062	
Pâte, Papier et Carton* . . . . .	3 868	
Plastiques et Produits de haute Polymérisation* . . . . .	3 772	
Pesticides* . . . . .	5 873	
Revêtements de Surface** . . . . .	2 036	
Toxicologie** . . . . .	1 867	
Fermentation** . . . . .	2 016	
Matières grasses** . . . . .	1 322	
* Montreal – ** Europe		
<i>Symposia:</i>		
Pesticides . . . . .	5 000	
<i>Frais administratifs:</i> . . . . .	600	
Total . . . . .	34 839	

	\$	\$
Frais de voyage et dépenses administratives – Président	1 160	
Frais de voyage et dépenses administratives – Trésorier	1 244	
Frais de voyage et dépenses administratives – Secrétaire Général		
clerical assistants . . . . .	5 300	
clerical assistant for English language . . .	3 000	
pension funds for clerical assistant . . . .	2 210	
stationery, stencils, office material . . . .	2 620	
postage fees . . . . .	1 715	
cables . . . . .	85	
phone calls . . . . .	100	
travels of the Secretary General . . . . .	1 100	
office premises . . . . .	930	
technical services, printing . . . . .	155	
photocopies . . . . .	63	
translations . . . . .	465	17 743
Réunion du Bureau . . . . .	15 659	
Réunion du Comité exécutif . . . . .	1 557	
Réunion des Présidents de Section . . . . .	400	
Comité de Rédaction . . . . .	2 978	
Editeur scientifique . . . . .	1 280	
Voyage Dr R. S. CAHN, USA . . . . .	600	
Statuts . . . . .	400	
Bulletin d'Information . . . . .	2 775	
Frais minimum organisation Conférence Montreal . .	1 000	
Taxes Royaume-Uni . . . . .	1 000	
2% Contribution à l'ICSU . . . . .	600	
Butterworths . . . . .	—	
Grand total . . . . .	211 404	

### Budget provisoire pour 1961

(établi après la réunion du Comité exécutif à Madrid – octobre 1960)

<i>Section de Chimie physique</i>	<i>Substance</i>		
	150 \$	100 \$	50 \$
Comité de Section . . . . .	5 180	4 730	4 280
<i>Commissions:</i>			
Symboles et Terminologie physico-chimiques . . .	3 820	3 420	3 020
Thermodynamique chimique . . . . .	7 740	7 190	6 640
Electrochimie . . . . .	2 170	1 970	1 770
Chimie macromoléculaire . . . . .	5 555	5 155	4 755
Données et Etalons physico-chimiques . . . .	1 760	1 610	1 460
Structure moléculaire et Spectroscopie . . . .	4 520	4 220	3 920
Bulletin «Chemical Thermodynamics» . . . .	250	250	250
<i>Symposia:</i>			
Chimie macromoléculaire/Plastiques . . . .	—	—	—
<i>Frais administratifs:</i> . . . . .	220	220	220
Total . . . . .	31 215	28 765	26 315

<i>Section de Chimie minérale</i>	<i>Subsistance</i>	<i>150 \$</i>	<i>100 \$</i>	<i>50 \$</i>
Comité de Section . . . . .		4 810	4 360	3 910
<i>Commissions:</i>				
Poids atomiques . . . . .		2 395	2 195	1 995
Nomenclature . . . . .		—	—	—
Hautes Températures . . . . .		3 530	3 230	2 930
Géochimie . . . . .		—	—	—
<i>Symposia:</i>				
Hautes Températures . . . . .		—	—	—
<i>Frais administratifs:</i> . . . . .		600	600	600
Total . . . . .		11 335	10 385	9 435

<i>Section de Chimie organique</i>				
Comité de Section . . . . .		4 520	4 220	3 920
<i>Commissions:</i>				
Nomenclature . . . . .		—	—	—
Codification, Chiffrage et Triage des Combinaisons organiques . . . . .		—	—	—
<i>Symposia:</i>				
Chimie de Coordination . . . . .		—	—	—
<i>Frais administratifs:</i> . . . . .		—	—	—
Total . . . . .		4 520	4 220	3 920

<i>Section de Chimie biologique</i>				
Comité de Section	*C'est au Président King à décider de l'attribution et de la répartition de cette somme			
<i>Commissions:</i>				
Nomenclature				
Etalons de Protéines				
Chimie clinique		4 300*	3 700*	3 300
<i>Symposia:</i>				
<i>Frais administratifs:</i> . . . . .		200	200	200
Total . . . . .		4 500	3 900	3 500

<i>Section de Chimie analytique</i>				
Comité de Section . . . . .		6 240	5 840	5 440
<i>Commissions:</i>				
Réactions analytiques . . . . .		4 915	4 615	4 315
Technique microchimiques . . . . .		4 495	4 145	3 795
Nomenclature . . . . .		—	—	—
Données optiques . . . . .		2 515	2 265	2 015
Données électrochimiques . . . . .		4 050	3 850	3 650
Données d'Equilibre . . . . .		2 440	2 240	2 040
<i>Symposia:</i>				
Techniques microchimiques . . . . .		—	—	—
<i>Frais administratifs:</i> . . . . .		1 000	1 000	1 000
Total . . . . .		25 655	23 955	22 255



<i>Section de Chimie appliquée</i>	<i>Subsistance</i>	<i>150 \$</i>	<i>100 \$</i>	<i>50 \$</i>
Comité de Section . . . . .		5 125	4 675	4 225
<i>Divisions:</i>				
Bromatologie* . . . . .		2 070	2 070	2 070
Eaux d'Egout et Eaux industrielles résidu- aires* . . . . .		1 315	1 315	1 315
Pâte, Papier et Carton . . . . .		2 910	2 660	2 410
Plastiques et Produits de haute Polyméri- sation . . . . .		3 410	3 110	2 710
Pesticides . . . . .		4 860	4 510	4 160
Revêtements de Surface* . . . . .		2 145	2 145	2 145
Toxicologie* . . . . .		1 885	1 885	1 885
Fermentation . . . . .		—	—	—
Matières grasses . . . . .		—	—	—
*Réunion en Europe: 400\$ frais de voyage et £ 10.— frais de séjour				
<i>Symposia:</i>				
Pesticides . . . . .		—	—	—
<i>Frais administratifs:</i> . . . . .		600	600	600
Total . . . . .		24 320	22 970	21 520
Frais de voyage et dépenses administratives — Président . . . . .		1 160	1 160	1 160
Frais de voyage et dépenses administratives — Trésorier . . . . .		1 244	1 244	1 244
Frais de voyage et dépenses administratives — Secrétariat Général clerical assistants . . . . . 5 300 clerical assistant for English lan- guage . . . . . 3 000 pension funds for clerical assistant . 2 210 stationery, stencils, office material . 2 620 postage fees . . . . . 1 715 cables . . . . . 85 phone calls . . . . . 100 travels of the Secretary General . . 1 100 office premises . . . . . 930 technical services, printing . . . . 155 photocopies . . . . . 63 translations . . . . . 465		17 743	17 743	17 743
Réunion du Bureau . . . . .		6 290	5 690	5 090
Réunion du Comité exécutif . . . . .		1 557	1 557	1 557
Réunion des Présidents de Section . . . . .		400	400	400
Comité de Rédaction . . . . .		2 475	2 225	1 975
Editeur scientifique . . . . .		1 250	1 250	1 250
Voyage Dr R. S. CAHN, USA . . . . .		600	600	600
Statuts . . . . .		400	400	400
Bulletin d'Information . . . . .		2 775	2 775	2 775

Frais minimum organisation Conférence Mon-			
treál . . . . .	1 000	1 000	1 000
Taxes Royaume-Uni . . . . .	1 000	1 000	1 000
2% Contribution à l'ICSU . . . . .	600	600	600
Butterworths . . . . .	—	—	—
Comptes Rendus . . . . .	—	—	—
Grand Total . . . . .	<u>140 039</u>	<u>131 839</u>	<u>123 739</u>

*R. Moorh*

*E. C. Nulb*



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## TENTATIVE RULES

### ABBREVIATIONS AND SYMBOLS FOR CHEMICAL NAMES OF SPECIAL INTEREST IN BIOLOGICAL CHEMISTRY

#### Explanatory Memorandum

The Nomenclature Commission of the Section for Biological Chemistry decided in 1958 that an attempt should be made to standardize the abbreviations and symbols used for chemical names of special interest in biological chemistry. A Sub-Committee, consisting of Professor L. HELLERMAN, Dr. W. KLYNE (Chairman) and Professor E. C. SLATER, was set up early in 1959 to deal with this problem.

The original draft proposals were based on the notes given at the beginning of each number of the *Journal of Biological Chemistry* (1958 *et seq.*) and of the *Suggestions to Authors* of the *Biochemical Journal* (66, 1; 1957). These drafts were circulated to members of the Nomenclature Commission, editors of chemical and biochemical journals, and interested specialists in many fields.

The problems were discussed fully at the meeting of the Nomenclature Commission for Biological Chemistry in Munich in September, 1959—and also in joint sessions with the Organic Nomenclature Commission and the Enzyme Commission of the International Union of Biochemistry (IUB). A third draft, incorporating the results of the Munich discussions, was widely circulated in December, 1959, and many useful comments on this were received.

A fourth draft, representing the "Highest Common Factor" of all these comments and of many personal discussions, was prepared in August, 1960, and circulated to the Biological Chemistry Nomenclature Commission and to editors of some principal journals.

The meeting of editors of biochemical journals called together by the President of IUB in Cambridge in September, 1960, invited Dr. W. KLYNE to attend part of their meeting. He explained the history and purpose of the memorandum on abbreviations; he emphasized that this work lies on the borderland between the provinces of the two Unions, and that agreement of both Unions in principle was therefore very desirable.

After discussion, the Secretary General of IUB, Prof. R. H. S. THOMPSON, proposed the following statement, which was unanimously agreed. 'The contents of this memorandum (i.e., the 4th Draft) were approved both by the Bureau of IUB and by the meeting of Editors of biochemical journals called together by the President of IUB under the Chairmanship of Dr. J. T. EDSALL, at a meeting held in Cambridge on 9th September, 1960.'

It has been impossible to meet all the comments and criticisms which colleagues have kindly offered on the various Drafts—since so many of the comments are mutually contradictory. However, these tentative proposals represent an honest attempt to give fair weight to all the diverse opinions which have been expressed.

Comments on these tentative proposals should be sent to the Chairman of the Nomenclature Commission of the Section for Biological Chemistry, Prof. W. KLYNE, Westfield College, Hampstead, London, N.W.3.—or to any member of this Commission.

## TENTATIVE RULES

### 1. Introduction

1.1 It is sometimes convenient to use abbreviations or symbols for the names of chemical substances, particularly in equations, tables or figures, which would otherwise require the repeated use of unwieldy terms. The limited use of abbreviations and symbols of specified meaning is therefore accepted. However, clarity and unambiguity are more important than brevity.

1.2 Some chemists deprecate the use of *any* abbreviations or symbols for compounds. However, in the present state of biochemistry, increasing knowledge of the structure of large molecules such as proteins, polysaccharides and polynucleotides makes it imperative to have some 'shorthand' notation in which symbols are allotted to the monomeric units (monosaccharides, amino acids and nucleosides) which are Nature's building-bricks in these complex structures. Opponents of abbreviations should consider how unwieldy the formula of insulin would appear if the 'three-letter' symbols for amino acids had not been permitted.

1.3 Titles and summaries of papers should be generally free from abbreviations. In the body of the paper, abbreviations and symbols may be used in the text sparingly, and only if advantage to the reader results. Chemical equations, which traditionally consist of symbols, may use a shorthand expression for a term which appears in full in the neighbouring text.

1.4 If, in exceptional circumstances, symbols or abbreviations are used in a summary, they must be defined in the summary, as well as in the body of the paper.

1.5 It is hoped that editors will adopt in their journals as many of the following rules as possible in the light of individual circumstances.

1.6 Even if some journals permit the use of standard abbreviations without definition, non-standard abbreviations should *always* be defined in each paper.

1.7 Non-standard abbreviations and symbols should not conflict with known ones, or with the general principles proposed in these rules (see also Section 8).

1.8 The symbols and abbreviations discussed here fall into two distinct classes.

(a) *Symbols* for monomeric units in macromolecules; these symbols are used to make up abbreviated structural formulae (sometimes called 'shorthand' formulae); e.g., Gly-Val-Thr for the tripeptide glycylvalylthreonine. These are generally used by structural organic chemists, and can be made fairly systematic.

(b) *Abbreviations* for semi-systematic or trivial names—e.g., ATP for adenosine triphosphate; FAD for flavin—adenine dinucleotide.

The abbreviations of the second kind are generally formed of three or four capital letters. They are chiefly required by biochemists and are generally introduced as required; the need is for brevity rather than for system. It is the indiscriminate coining of such abbreviations that has aroused objections to the use of abbreviations in general.

#### *Symbols for Natural Macromolecules*

1.9 There are three main series of symbols for monomeric units, viz. those for amino acids, monosaccharides and mononucleosides, of which the amino acid series is the oldest. An attempt has been made here to devise a standard treatment for all the three great groups of macromolecules which are built

up from these units. The standardization of treatment will involve certain unimportant changes in the (as-yet partly developed) systems for individual groups. This standardization is desirable for two reasons.

(a) The work of authors, editors and readers will be made simpler if the same principles apply to polypeptides, polysaccharides and polynucleotides.

(b) Standard treatment will be essential for dealing with 'hybrid' compounds, built up of units of different kinds, e.g. the nucleotide-peptides from *Staphylococcus aureus* (PARK, J. T., *J. biol. Chem.*, 194, 877, 885, 897; 1952. ITO, E., and STROMINGER, J. L., *J. biol. Chem.*, 235, PC5; 1960). Few of these are known at present, but it is likely that many more will come to light as biochemistry develops.

1.10 It is much more difficult to be completely systematic in the planning of abbreviations and 'shorthand' symbols for complex substances, than in the construction of organic chemical formulae and physical symbols. Experience shows that it is not only difficult, but in some cases undesirable, to be rigidly consistent with these complex symbols.

The following example will illustrate these facts. For most purposes it is convenient to use the symbol Gly-Val-Thr to represent the tripeptide glycylvalylthreonine, as solid or in solution, whatever its state of ionization. We know that at certain defined pH values, the tripeptide will exist (mainly) as cation, as anion or as dipolar ion, but it is usually unnecessary to make separate shorthand symbols to represent these different forms.

This deliberate lack of precision runs parallel with the convention by which biochemists talk about the 'citric acid cycle' or 'tricarboxylic acid cycle', in spite of the fact that the acids exist almost entirely as their anions at physiological pH.

In several cases it is thought desirable to recommend for the same substance two different forms of abbreviation or symbol, one or other of which is more convenient for specific purposes.

### *Alternative Abbreviations and Symbols*

1.11 For some important compounds it is in practice necessary to have two symbols or abbreviations. For example, most biological chemists will continue to speak of 'adenosine diphosphate', or more often to abbreviate it as 'ADP'. Organic chemists interested in the structure and synthesis of this and related compounds will wish to call this compound 'adenosine 5'-pyrophosphate', and to use a systematic symbol (Ado-5'-P-P). The abbreviation and the symbol must therefore coexist.

1.12 Abbreviations such as 'ADP', which are to the organic chemist *trivial*, will be used to form the systematic names of enzymes in the patterns proposed by the Enzyme Commission of the International Union of Biochemistry.

### *Language Differences*

1.13 It is desirable that where trivial abbreviations (such as ACTH) are necessary, they should be identical in all languages—as are chemical symbols (e.g. N standing for nitrogen, azote and Stickstoff). It would be unfortunate if the substance called in English 'ribonucleic acid', and abbreviated 'RNA', were to retain two separate abbreviations, ARN (acide ribonucléique) and RNS (Ribonukleinsäure) in French and German, to say nothing of other languages. It is suggested that the international abbreviations should be taken from that language, in which a given abbreviation first became common. Abbreviations introduced in future may conveniently be based on Greek or Latin forms.



1.14 Structural analogues of a given compound should not generally be abbreviated as if they were derivatives of that compound.

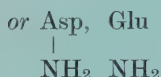
## 2. Polypeptides and Proteins

This system is based on the original proposals of BRAND, E., and EDSALL, J. T. (*Ann. Rev. Biochem.* 16, 224; 1947) as developed in the monograph of GREENSTEIN, J. P., and WINITZ, M., *The Chemistry of the Amino Acids*, 3 vols. Wiley, New York 1961.

2.1 The following symbols shall be used to denote the common amino acids and their residues as combined in polypeptides and proteins:

alanine	Ala	leucine	Leu
arginine	Arg	lysine	Lys
aspartic acid	Asp	methionine	Met
cystine (half)	Cys	ornithine	Orn
cysteine	CySH	phenylalanine	Phe
glutamic acid	Glu	proline	Pro
glycine	Gly	serine	Ser
histidine	His	threonine	Thr
hydroxylysine	Hylys or (OH)Lys*	tryptophan	Try
hydroxyproline	Hypro or (OH)Pro*	tyrosine	Tyr
isoleucine	iLeu or Ileu*	valine	Val

Modified amino acids such as asparagine and glutamine may be represented as Asp(NH<sub>2</sub>), Glu(NH<sub>2</sub>)



The modifying group is shown *either* in parentheses *or* below the amino acid symbol.

2.2 The abbreviations should *not* be used for the free amino acids in the *text* of papers, but only in tables, lists and figures.

2.3 Where the sequence of residues in a peptide or protein is known, the symbols for the residues shall be written in order and joined by short lines (dashes, hyphens). Where the sequence is *not* known, the group of symbols, separated by *commas*, shall be enclosed in parentheses.

In the formulation of linear polypeptides or proteins, the symbol written at the left-hand end of a known sequence is that of the amino acid carrying the free amino group, and the symbol written at the right-hand end is that of the residue of the amino acid carrying the free carboxyl group.

Example:

The condensed formula

Gly-Glu-Arg-Gly-Phe-(Phe, Tyr, Thr, Pro)-Lys-Ala

is that of a polypeptide in which the sequence of the first five amino acids has been established, the glycine at the left carrying the free amino group. The sequence of the next four amino acids is unknown, but the last two amino acids are in known order with alanine carrying the free carboxyl group.

\* Opinion is rather evenly divided between the alternative symbols in these cases.

If the direction of the link needs to be specified, this may be done with an arrow thus ( $\rightarrow$ ), the point of the arrow indicating the nitrogen of the peptide bond  $\dots\text{CO}\rightarrow\text{NH}\dots$

Example: Gly $\rightarrow$ Ala $\rightarrow$ Val

The symbol  $\rightarrow$  is desirable particularly for dealing with *cyclic* peptides.

Unless otherwise indicated, it is assumed that polyfunctional amino acids, such as glutamic acid, aspartic acid and lysine, are joined by normal  $\alpha$ -peptide bonds.

Abnormal links, e.g.  $\gamma$ -peptide bonds, may be indicated by methods such as the following:—



#### Comment

The links between residues have been shown previously by peptide chemists as full points (periods, dots;  $\cdot$ ) and by carbohydrate chemists (generally) as short strokes (dashes, hyphens;  $-$ ). At times special symbols have been used ( $>$  or  $\rightarrow$ ) to show the direction of what is in all cases an unsymmetrical link (peptide or glycoside).

It is suggested that for the sake of consistency and ease of printing a short rule or dash ( $-$ ), which is what we normally use for a chemical bond, shall be the standard connecting symbol.

The simple usage, by which Gly-Gly-Gly stands for glycylglycylglycine, appears to involve the employment of the *same* three letters Gly for *three* different residues or radicals—(b), (c), (d) below. However, if the dashes or hyphens are considered as part of each symbol, we have four distinct forms, for the free amino acid and the three residues, viz:

- (a) Gly =  $\text{NH}_2\cdot\text{CH}_2\cdot\text{CO}_2\text{H}^*$  ; the free amino acid
- (b) Gly- =  $\text{NH}_2\cdot\text{CH}_2\cdot\text{CO}-$  ; the left hand unit
- (c) -Gly- =  $-\text{NH}\cdot\text{CH}_2\cdot\text{CO}-$  ; the middle unit
- (d) -Gly =  $-\text{NH}\cdot\text{CH}_2\cdot\text{CO}_2\text{H}$  ; the right hand unit

For peptides, a distinction may be made between the *peptide* itself, e.g., Gly-Glu (shown *without* dashes at the ends of the symbols) and the *sequence*, e.g. -Gly-Glu- (shown *with* dashes at the ends of the symbol).

2.4 Where it is necessary to indicate the configuration of the residues, the prefixes L- or D- shall be attached directly to the symbol of the amino acid.

Example: L-Leu-D-Phe-Gly

If no configurational prefix is given, it is to be assumed that all residues\*\* are L; this should be stated in each paper.

#### Rare amino acids

2.5 It has been thought appropriate to restrict the list in para. 2.1 to the commoner amino acids. Symbols for the rarer amino acids and for diastereoisomers are under discussion by specialists in the field.

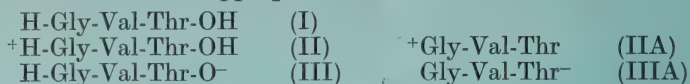
#### State of ionization

2.6 As stated in para. 1.10 it is generally convenient to use the same abbreviated formula for a polypeptide, no matter what its state of ionization.

\* or corresponding ionized forms

\*\* Except for glycine, which is inactive

In some circumstances, however, an author will wish to show that a peptide is acting as a cation or anion; he may then use one of two procedures. (a) According to convention of GREENSTEIN and WINITZ (*The Chemistry of the Amino Acids*) the amino-terminal and carboxyl-terminal ends of the peptide are marked with H and OH respectively (I); these may be modified to show the appropriate state of ionization (II or III)



(b) Alternatively + and — signs may be added to the symbols without terminal H or OH (IIA or IIIA).

### Derivatives

2.7 Symbols for the functional groups of derivatives are under discussion by specialists in the field.

### Comment

Several systems of single-letter abbreviations for amino acids are under discussion by specialists in the protein field.

## 3. Carbohydrates

A system of three-letter symbols for monosaccharide units, similar to that already in use for peptides, was introduced by the Carbohydrate Nomenclature Committees of the Chemical Society and the American Chemical Society (cf. *J. Chem. Soc.* 5121; 1952; *Chem. Eng. News*, 31, 1776; 1953). The following rules are based on this system.

3.1 The following symbols shall be used to indicate monosaccharide units in oligosaccharides and polysaccharides.

Glucose	Glc*	Fructose	Fru
Galactose	Gal	Ribose	Rib
Mannose	Man		

Other monosaccharides shall be represented similarly by the first three letters of their names, unless this would lead to confusion with an existing symbol (e.g. Gly and Thr in the amino acid series).

3.2 Pyranose and furanose forms shall be designated where necessary by the suffixes *p* and *f*.

3.3 Configurational symbols D and L (small Roman capital letters) shall be shown where necessary as prefixes.

Examples (i) a D-glucopyranose unit, D-Glcp

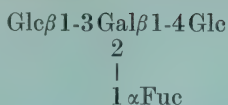
(ii) a D-fructofuranose unit, D-Fruf

3.4 Symbols thus formed shall be joined by short rules to indicate the links between units. The position and nature of the links shall be shown by numerals and the anomeric symbols  $\alpha$  and  $\beta$ .

Examples      Maltose,    Glcp $\alpha$ 1-4Glc  
                   Lactose,    Galp $\beta$ 1-4Glc  
                   Stachyose, Galp $\alpha$ 1-6Galp $\alpha$ 1-6Galp $\alpha$ 1-2 $\beta$ Fruf

\* Instead of G, used previously

## A branched-chain tetrasaccharide



Arrows may be used to indicate the direction of the glycoside link, the arrow pointing away from the hemiacetal carbon of the link; e.g., lactose may be represented as  $\text{Gal}\beta 1 \rightarrow 4\text{Glc}$ .

3.5 2-Deoxy sugars shall be designated by the symbol for their parent sugar with the prefix 'de'. Other deoxy-sugars may be designated similarly with a positional numeral.

Examples: 2-Deoxyribose, deRib ; 3-Deoxyglucose, 3-deGlc.

*Comment.* It may sometimes be necessary to enclose such a symbol in parentheses to avoid confusion between the numeral indicating the "deoxy-position", and numerals indicating the position of linkages.

3.6 Derived monosaccharide units—such as glyconic acids, glycuronic acids, 2-amino 2-deoxy saccharides and their *N*-acetyl derivatives—may be designated by reasonable modified symbols, defined in each paper. Examples of symbols which have been used or suggested are as follow (all in the glucose, Glc, series):

Gluconic acid	GlcA :GlcCO <sub>2</sub> H
Glucuronic acid	GlcUA :GlcUA
Glucosamine	GlcN :GlcNH <sub>2</sub>
<i>N</i> -Acetylglucosamine	GlcNAc:GlcNHAc

Further consideration by specialists in the field is necessary.

3.7 Symbols should not be used for the monosaccharides themselves, except in tables, lists and figures.

## 4. Phosphorylated Compounds: General

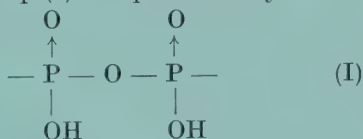
4.1 Phosphorylated compounds may be designated by the name\* (or abbreviation) of the parent compound with a capital italic *P* as a prefix or suffix.

*P* is used as prefix where it symbolizes 'phospho-' at the beginning of a name. *P* is used as a suffix where it symbolizes 'phosphoric acid' or 'phosphate' at the end of a name.

For compounds containing more than one position available for phosphorylation, the position of the phosphate group should always be indicated by number or Greek letter.

4.2 The capital *P* when linked to one radical indicates -PO(OH)<sub>2</sub> or any ion derived from it; when linked to two radicals it indicates -PO(OH)-, or the ion derived from it.

4.3 The pyrophosphate group (I) is represented by -*P-P*-



\* Comment. This type of partial abbreviation (e.g., glucose-6-*P*) is convenient in bio-chemical papers where there is much discussion of phosphorylated metabolites and intermediates. It is not commonly used in organic chemical papers.



Two separate phosphate groups, attached at different points to the same molecule, are represented by  $P_2$ .

Examples:

Glucose 6-phosphate	Glucose-6- <i>P</i> or Glc-6- <i>P</i>
{Glycerol 1-phosphate	{Glycerol-1- <i>P</i>
{or $\alpha$ -phosphoglycerol	{ $\alpha$ - <i>P</i> -Glycerol
{3-Phosphoglyceric acid	{3- <i>P</i> -Glyceric acid
{Glycerate 3-phosphate	{Glycerate-3- <i>P</i>
Phosphoenolpyruvate	<i>P</i> -Enolpyruvate
Fructose 1, 6-diphosphate	Fructose-1,6- $P_2$ or Fru-1,6- $P_2$
{Creatine phosphate	{Creatine- <i>P</i>
{Phosphocreatine	{ <i>P</i> -creatine

4.4 The term diphosphate (and the abbreviation DP) should not generally be used for the pyrophosphate group. Exceptions are made for some important compounds (e.g., ADP; para. 5.12).

## 5. Nucleotides and Nucleic Acids

5.1 Two systems are permitted, one of which employs three-letter symbols for the ribonucleosides, similar to those used for amino acids and monosaccharides, while the other uses single capital letters.

5.2 If symbols are necessary for unusual sugars or bases, or for abnormal linkages between sub-units, e.g.  $\alpha$ -glycosidic linkages, these must be defined in each paragraph.

### *Three-letter symbols*

5.3 The phosphate group is designated by an italic capital *P* (cf. Section 4), and the point of attachment shall in all cases be specified.

5.4 The ribonucleosides are designated by the following three-letter symbols, which are chosen to avoid confusion with the corresponding bases:

Ado	adenosine	Tho	ribosylthymine
Cyd	cytidine	Urd	uridine
Guo	guanosine	Xao	xanthosine
Ino	inosine		

Ribosylnicotinamide is similarly designated by Nir.

5.5 The 2-deoxyribonucleosides are designated by the symbols for the corresponding ribose derivatives, with the prefix de: thus, e.g. 2-deoxyadenosine, deAdo.

5.6 The positions of phosphate linkages to sugar are designated by *primed* numerals, and the links between units indicated by dashes (as for polysaccharide abbreviations, but with primes added).

Examples:

- (i) Nucleoside monophosphates, Ado-2'-*P*, Guo-3'-*P*, deAdo-5'-*P*.
- (ii) Dinucleotides, *P*-5'-Ado-3'-*P*-5'-Guo, Ado-3'-*P*-5'-Guo-3'-*P*.
- (iii) A trinucleotide. Ado-3'-*P*-5'-Guo-3'-*P*-5'-Urd-3'-*P*.

5.7 A cyclic phosphate group is designated by the numbers of the two hydroxyl groups which are esterified. Thus, e.g., 2',3'-*P*, as in Ado-3'-*P*-5'-Guo-2',3'-*P*.

5.8 The so-called nucleoside-diphosphate-sugars, which are really pyrophosphates, are represented as follows:

Urd-5'- <i>P</i> - <i>P</i> -Glc	= Uridine diphosphate glucose
Urd-5'- <i>P</i> - <i>P</i> -Gal	= Uridine diphosphate galactose.

### One-letter symbols

(Chiefly for use in polynucleotides)

5.9 The common ribonucleosides may be designated by initial capital letters thus:—

A adenosine	T ribosylthymine
C cytidine	U uridine
G guanosine	

2-Deoxyribonucleosides may be designated by the same letters with the prefix *de*; e.g., *deA* = 2-deoxyadenosine.

5.10 The phosphate group is indicated in this system of symbols by a lower-case letter 'p' (to separate what would otherwise be a solid mass of capital letters).

The points of attachment of the phosphate groups to the nucleosides are indicated by numerals as in para. 5.6, or by the abbreviated methods shown below in para. 5.11.

### Abbreviated forms

5.11 If the internucleotidic linkage is regular, as in the known natural polynucleotides, the symbols may be abbreviated still further by placing the numerals indicating the positions of the phosphate linkages in front of the whole series of symbols. The symbols 3', 5' in front of a series indicate that each phosphate group is linked to the 3'-hydroxyl group of the nucleoside to its *left* in the sequence and to the 5'-hydroxyl group of the nucleoside to its *right* in the sequence.

The letters '*de*' may also be used as a prefix to the series, to indicate that *all* the sugars concerned are 2-deoxysugars.

Examples for three-letter and one-letter symbols are as follows:

(i) ribotrinucleotide with phosphate groups linked to 3' and 5' hydroxyl groups of successive sugars.

Full three-letter symbols

*Ado-3'-P-5'-Guo-3'-P-5'-Urd-3'-P*

Abbreviated three-letter symbols

3', 5'-(*Ado-P-Guo-P-Urd-P*)

Abbreviated one-letter symbols

3', 5'-(*ApGpUp*)

(ii) a deoxyribo-dinucleotide with an extra phosphate group at *O-5'* on the first-named unit.

*de-3', 5'-(P-Cyd-P-Ado-P)* = *de-3', 5'-(pCpAp)*

(iii) a regular hexanucleotide of 3', 5'-linked adenylic acid units

3', 5'[*Ado-P*]<sub>6</sub> = 3', 5'-[*Ap*]<sub>6</sub>

### Special abbreviations

5.12 The 5'-mono-, di- and tri-phosphates of the common nucleosides may be designated by the customary special abbreviations; e.g., AMP, ADP, and ATP for the derivatives of adenosine. The corresponding derivatives of cytosine, guanine, inosine, and uridine may be designated by similar abbreviations in which the initial letters are C, G, I, U respectively. Thus, e.g., IMP = inosine 5'-monophosphate, UDP = uridine 5'-diphosphate

These compounds should, however, be designated in more 'chemical' papers by systematic symbols as indicated in para. 5.6, thus, e.g., *Ado-5'-P*, *Ado-5'-P-P*, *Ado-5'-P-P-P*, when required for consistency with the other nucleotides.

5.13 Flavin mononucleotide (riboflavin 5'-phosphate) may be designated by the special abbreviation FMN.

5.14 The two types of nucleic acid are designated by their customary abbreviations:

RNA, ribonucleic acid  
or ribonucleate

DNA, deoxyribonucleic acid  
or deoxyribonucleate.

## 6. Coenzymes

There has been much controversy about names and symbols for the nucleotide coenzymes (DPN *versus* Co I, etc.).

The Enzyme Commission of the International Union of Biochemistry decided in August, 1959, to recommend the following names, for the reasons briefly stated in the comment below.

Nicotinamide—adenine dinucleotide\* for the compound hitherto commonly called diphosphopyridine nucleotide or Coenzyme I.

Nicotinamide—adenine dinucleotide phosphate for the compound hitherto commonly called triphosphopyridine nucleotide or Coenzyme II.

The Biological Chemistry Nomenclature Commission of IUPAC after discussion accepted these recommendations of the Enzyme Commission.

*Comment* (cf. DIXON, M. *Nature*, 188, 464; 1960).

The two main systems of nomenclature of the nicotinamide nucleotide coenzymes (the CoI and the DPN systems) are both unsatisfactory. The first gives no indication of the chemical structure at all; the second indicates a chemical structure which is incorrect.

Since no compromise between the two systems is possible, the only satisfactory solution is to abandon both and to adopt a name which indicates the correct chemical structure. The name adopted should be consistent with the existing names of three closely related compounds, namely the corresponding mononucleotide (nicotinamide mononucleotide, NMN) and the two flavin nucleotides (flavin—adenine dinucleotide, FAD, and flavin mononucleotide, FMN).

The name which the Enzyme Commission of IUB, after careful consideration of possible alternatives, has decided to recommend in place of CoI or DPN, namely nicotinamide—adenine dinucleotide (NAD), not only indicates the structure satisfactorily, but forms a logical system with the three which are already generally accepted\*\*.

CoII or TPN is a phosphorylated derivative of NAD, and may be called nicotinamide—adenine dinucleotide phosphate, conveniently abbreviated to NADP.

6.1 The dinucleotide coenzymes may be designated by the following abbreviations:

Nicotinamide—adenine dinucleotide  
(formerly DPN, CoI)

NAD

Nicotinamide—adenine dinucleotide phosphate  
(formerly TPN, CoII).

NADP

\* The symbol between nicotinamide and adenine and in similar places is an *en-rule* (in English typographical language) not a *hyphen*; this is intended to show that the compound is a hybrid derivative (dinucleotide) of nicotinamide and adenine.

\*\* Correspondence with members of Commissions, Editors and workers in the field indicates that there is a considerable body of opinion in favour of the traditional DPN-TPN system of nomenclature and abbreviations. It therefore seems appropriate to acknowledge that some workers may still wish to use the DPN-TPN system; it is hoped that those who do so will follow the principles of abbreviation indicated here for NAD and NADP.

6.2 It is often necessary to distinguish by abbreviations the oxidized and reduced forms of these coenzymes. Two methods have been used in the past, and it is felt necessary to retain both of these, using as basic abbreviations NAD and NADP.

The two forms are as follows:

	<i>Oxidized Form</i>	<i>Reduced Form</i>
<i>A</i>	{NAD {NADP	{NADH <sub>2</sub> {NADPH <sub>2</sub>
<i>B</i>	{NAD <sup>+</sup> {NADP <sup>+</sup>	{NADH {NADPH

These abbreviations may be used in equations thus



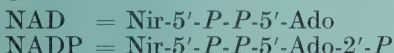
It is important to note that the two forms of representation (*A* and *B*) must *not* be mixed. For example, if NAD is used in a particular paper for the oxidized form of the coenzyme, NADH *cannot* correctly be used for the reduced form.

6.3 Other coenzymes may be designated as follows:

FAD, FADH <sub>2</sub>	Flavin—adenine dinucleotide, and its reduced form
FMN, FMNH <sub>2</sub>	Flavin mononucleotide, and its reduced form
GSH, GSSG	Glutathione, and its oxidized form
CoA, acetyl-CoA	} Coenzyme A and its acetyl derivative. (alternative forms)
or CoASH, CoASAc	

6.4 Systematic symbols may be built up for some of these coenzymes as shown in para. 5.6:

Examples:



## 7. Miscellaneous Compounds

7.1 The following abbreviations are permitted; although they are fairly common, they should be defined in any paper if it is thought that readers might be unfamiliar with them. Some abbreviations are taken from the list published by *Ann. Rev. Biochem.*

ACTH	adrenocorticotropin, adrenocorticotropic hormone, or corticotropin
BAL	2,3-dimercaptopropanol
CM-cellulose	carboxymethyl-cellulose
DDT	1, 1, 1-trichloro-2, 2-bis( <i>p</i> -chlorophenyl)ethane
DEAE-cellulose	diethylaminoethyl-cellulose
DFP	di-isopropyl phosphorofluoridate
DNP-	2, 4-dinitrophenyl-
DOC	11-deoxycorticosterone
DOCA	11-deoxycorticosterone acetate
DOPA	3, 4-dihydroxyphenylalanine
EDTA	ethylenediaminetetra-acetic acid (or -acetate)
FDNB	1-fluoro-2, 4-dinitrobenzene
Hb	haemoglobin (deoxygenated)



HbCO	'carboxy'haemoglobin—i.e. haemoglobin + carbon monoxide
HbO <sub>2</sub>	oxyhaemoglobin
MetHb	methaemoglobin
Mb	deoxygenated myoglobin (may be modified in the same way as Hb)
MSH	melanocyte-stimulating hormone
TEAE-cellulose	triethylaminoethyl-cellulose
Tris	tris(hydroxymethyl)aminomethane; 2-amino-2-hydroxymethylpropane-1, 3-diol

7.2 If one-letter symbols for steroids (Compound F, Substance S) are used, the systematic name of the compound must be given at least once in each paper. Derivatives, such as 'tetrahydro-E' and '11-epi-F' must also be clearly defined by systematic names.

## 8. Standards for new abbreviations

8.1 Abbreviations other than those listed or defined above should be constructed in accordance with the following principles.

8.2 The number should be limited; none should be introduced except where repeated use is required. Three-letter abbreviations are most convenient.

Duplication in another sense of an accepted abbreviation *must* be avoided.

Where a number of derivatives, salts, or addition compounds may be formed, the name of the common fundamental structure should be the one abbreviated, so that other symbols may be attached to it.









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